The Builder.

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The Architectural Association Sketch-Book.

THE continued success of the Architectural Association Sketch-Book, of which the second volume of the third series has recently appeared, is a good criterion of the continued activity and vitality of the Association. As it proceeds, the more prominent of the old contributors, many of whom have become probably too busy in other ways to keep up this kind of contribution, drop out of the ranks, but they find worthy successors—"uno averso non deficit alter," and the old prestige of the publication seems fully maintained. The editors are now Mr. W. G. B. Lewis and Mr. John Begg. Some of the drawings are signed by initials which are not familiar to us, by rather undecipherable monograms, or by signatures which are not always very legible; but the work itself is the main point, and it is perhaps one of the merits of the Sketch-Book that the contributors seem not so anxious to get their names prominent as to do good work.

In the case of sketches which have to be reproduced in multiplied form by some one of the various processes available, the fitness of the drawing for reproduction in this manner is an element to be considered. The editors recognise this in their preface, in the course of which it is remarked that "the committee endeavours to select sketches likely to come out successfully; in the process of reproduction, however, some sketches come out badly. In the interest therefore of the subscribers, as well as for the credit of the contributors themselves, the committee necessarily reserves the right of cancelling any proof that may turn out unsatisfactorily."

We do not know that the present volume contains any plates that ought to have been cancelled on this account, but it contains some which have not been produced in a very satisfactory manner. We may probably conclude that some of the drawings included have not been made with the special object of being produced in the Sketch-Book; members who are known to sketch well are probably sometimes asked whether they have anything to contribute, and in that case the chance must be taken as to whether the drawings will reproduce satisfactorily. But where sketches are prepared expressly for the Sketch-Book, it is quite possible to ensure that they shall reproduce well by a little consideration of the conditions favourable to that end.

As far as we have observed, only three processes are used: ordinary photo-lithography from line drawings, which is done very well by Mr. Kell; the same lithographer's process for reproducing pencil drawings and washed drawings, and Messrs. Sprague's ink-photo process for washed drawings. Photo-lithography from line drawings is of course by far the easiest process to ensure a good reproduction; the nature of the surface of the paper is here of less consequence than in other processes, and what is chiefly necessary is that lines should be clear and firm, and drawn in either a decidedly black or in a brown ink—at all events something with no touch of blue in it; and that the draughtsman should bear in mind that he cannot produce lighter or distant effects by lighter ink, but only by thinner lines. For this reason it is not very easy to produce broad effects of tone in line drawing by photo-lithography, except by a good deal of slow, minute, and careful work in shading; and a drawing which, from the partial use of lighter ink, looks very effective in the original, will be certain to prove a sad disappointment to its author when lithographed. This seems to have been recognised by the contributors, for we observe that line drawing and photo-lithography are mostly used for measured drawings rather than for sketches of effect. There is at present a growing inclination on the part of draughtsmen to avoid a great expenditure of time on drawings of effect, to get the effect quickly and by light and rapid working, especially by pencil finished in lightly washed tints and shadows; but it might be as well to endeavour to introduce from time to time one or two examples of what can be done in the way of effect by pure line shading. It is one form of artistic work, and it has certain advantages, in the clearness, certainty and strength of the effect when fully worked up, and also in the complete control which the draughtsman has over his touches. Brushwork is somewhat more difficult to control, or difficult to alter or improve if the first effect is unsatisfactory.

As soon as the processes are employed by which pencil and brushwork can be reproduced, the nature of the paper used becomes an important element in the result. For the paper itself makes a "tint," and the rougher the paper the more "tint" it produces; so that the rough paper which produces a bold effect and a great deal of depth of tone in an original drawing, in the reproduction injures the effect very much by spreading a kind of layer of dirty tone over the whole plate, greatly injuring its effect. It is thus well to remember that in these cases the most effective drawing may make the least effective lithograph. Some of the plates in the Sketch-Book are evidently from drawings that have been made on rough paper, either through ignorance of the probable result or because the drawing was not intended specially for reproducing; and this applies alike to washed drawings and to pencil. Thus Mr. Bolton's "Reja from Burgos Cathedral," a pencil drawing, has been much injured in its effect in Mr. Kell's reproduction, and we have no doubt this is mainly owing to the grain in the paper. On the other hand, Mr. Spooner's "Elevations of the Clearstory of the Presbytery at Ely," evidently a pencil drawing, comes out very well by the same process (Kell's photo-process), and we shall probably be right in thinking that this was drawn on card with a comparatively smooth surface. Mr. Balfour's washed drawing of "Higham Ferrers Bede House," in Part 3 (same process), looks misty and unsatisfactory, but this very mistiness of effect is to some extent an advantage in such a case as that of Mr. Horsley's drawing in "sanguine" of the apse at Cephalu, giving something of the softness and texture of the original medium. But it may be safely said that for pure pencil drawing, mainly in line, the smoother the paper the better, and that washed drawings on rougher paper will realise more of their original effect in reproducing (especially by ink photo) the more broad they are in execution and the more free from actual lines. Lines and wash combined do not very often succeed well; what is favourable to line is not favourable to brushwork, except in the case of decisively drawn pencil lines with a little indian ink tint, not over the whole, but to emphasise

certain portions; this method of execution, on smooth paper (on which *light* tints can be easily worked with the brush) generally produces a successful result in lithographing.

In regard to washed drawings of a broader and more fully worked description we are surprised that the editors have never yet, as far as we remember, thought of trying the system of what are called tone-blocks. Some drawings will come out better under this process than under any form of lithography, and it has a bright effect, in the contrasts of light and shade, and a freedom from the dirty look which often pervades lithographs of this type of drawing, which are certainly strong recommendations. It is true that with some of the most refined tone-block processes the possible size of the plates is rather limited; but there are very good tone-block processes which can be used on the scale of the Sketch-Book page with entire success.

In regard to the contents of the Sketch-Book, the majority of the drawings aim at recording in a picturesque manner a picturesque incident of architecture, rather than at putting on record accurate and complete measured drawings of important buildings. There are however a large set of measured drawings of Hampton Court by Mr. Maule, which are really valuable, and a considerable number of contributors give what may be called sketch elevations and sections; we do not mean without scale, but rather slightly drawn and not such as would generally be accepted as complete records of the building or feature illustrated. Sections of mouldings also are pretty numerous. It may of course be urged that the object of a "sketch-book" is sketches, and not elaborate measured drawings, but it would perhaps be as well to encourage a little the contribution of the more thorough and monumental type of measured drawings, which would give an increased value to the work as a repository of architectural illustration. As it is, the value of the book consists mainly in the representation it gives of a good many rather curious and individual architectural conceptions, some of them not much known or illustrated, and which are of interest both as illustrations of what exists and as suggestions for fresh ideas. As in most of the more recent issues, the amount of pure Gothic work illustrated is not large, and most of what there is is of late date. In the restlessness of architectural taste and movement in the present day it is natural that students should look out rather for what suggests new ideas than for the kind of correct and orthodox detail of which text-books are already full. Also, naturally, young architects will be inclined to sketch what will assist them in carrying out the kind of work which is most in favour at the moment. We seem to feel this in the very first sketch, that of Christchurch Park, Ipswich (Mr. Spooner), with its quiet windows, its picturesque outline of wavy gables all in a row, and its characteristic two-storied porch with flanking columns utterly out of proportion. Mr. Hart shows us the campanile in the Piazza Degbe at Verona, seated apparently on the roof of a house, showing that Gibbs at St. Martin's was not the first offender in this kind. Mr. Bolton's careful elevation and plans of the upper or Renaissance stage of the Giralda at Seville is of great value as showing to a pretty large scale the real details of this curious piece of work, which is Renaissance "with a difference"—more of a difference than is perhaps generally suspected. The late Mr. Rimmer's measured drawings of the three-storied cloister (if one may so call it) of the monastery of Lupiana (Spain) catches the eye by the curious treatment of the segmental arches of the middle story, the arch curve divided into two lengths by a little vertical rise at the haunch; a conceit utterly unconstructive in appearance, and which it is to be hoped will *not* be copied by any one in search of new ideas. The sketch elevation of the Palace of the Marquiss de Palma at Palma, Majorca (also Mr. Rimmer's), is on the other hand not only perfectly delightful in itself, with its masses of plain wall, severely unadorned arched doorway, pilastered windows disposed unsymmetrically, and the charming feature of the traceried loggia under the eaves—but it is a kind of thing full of suggestion, without any thought of direct copying. The church of All Saints, The Leigh, Wilts, which was most reluctantly condemned to be taken down a little while ago, and rebuilt (as far as possible) on a new site, owing to the circumstances both of the condition of the structure itself and of its approaches, is commemorated by Mr. Needham Nelson in three pages of delicately executed sketches. One of the most characteristic and interesting things in the whole book is Mr. Rimmer's perspective sketch of the courtyard of St. Morell's House at Palma, with its bulgy columns and low-pitched wide segmental arches; a sketch which might also bring forth fruit as an idea for a hall and staircase. Among other characteristic works illustrated may be mentioned the Calvary and Entrance Gate to the cemetery at La Martyr, Bretagne (Mr. C. C. Brewer); the delightfully practical and picturesque little "Granary of Steeple Ashton Manor House" (Mr. R. S. Balfour) carried on beams laid across square stone pillars about seven feet high, leaving it open underneath; and Mr. Hart's detail of the pulpit at San Cesario, Rome.

Will a time come when there shall be no more old things left unsketched? Not yet, perhaps; but, without anticipating that time, we may suggest that there is a possible enlargement of the scope of the Sketch-Book which might add to its interest, even before the sketching of old things is exhausted. The Boston *Architectural Review*, from time to time alluded to in our columns, made a practice at one time of publishing schemes and designs for imaginary buildings; *projets*, as the French call them, which were often of considerable interest. We have nothing of the same kind issued among architectural students in England. Why should not the Architectural Association Sketch-Book assume the form of an alternating publication, one volume or Part devoted to sketches of ancient work, the next volume to designs and ideas for new work; not subjects suggested by the editors or committee, but such as occur to the contributors themselves; and thus continue the issue of an ancient and a modern volume or Part alternately? We should think there would be a good deal of interest in such a publication; at all events we volunteer the suggestion for the consideration of those who are concerned with the management of the Sketch-Book, wishing it in the meantime all future prosperity in any case.

THE INFLUENCE OF MATERIAL ON ARCHITECTURE.

Chapter V.

BY BANISTER F. FLETCHER, A.R.I.B.A.

Rome: The Further Development of Brickwork and Concrete.

THE science of construction acquired by the Romans descended to the Byzantines. The construction of the walls with a brick facing and concrete interior is merely an extension of the Roman system, and need not be discussed. It was employed not only for walls, but also for vaults, bridges, and aqueducts. As has been pointed out, the building procedure was developed somewhat in this direction: the general form of the building being more or less decided, the first thing necessary was to collect monolithic marble shafts, and it was necessary to have a certain knowledge where such might be quarried or otherwise obtained, before even the foundations were prepared, for the columns decided the height and points of support of the building. These columns once assured, the body of the structure was proceeded with, as a brickwork shell without further dependence on the masons, who were only required to prepare the bases, capitals, and cornices, everything else being completed as a brick "carcase." The building was thus made of vast masses of thin bricks, the mortar composing half of the aggregate; when this had settled down and dried, the walls were sheeted with their marble covering, the vaults overlaid with mosaic, and the pavement laid down. In this way the carcase was completed at once, the bricklayers not having to wait for the masons; and, further, by reserving the application of the marble until the structure was dry and solid, it was possible to bring together unyielding marble and brickwork with large mortar joints that must have settled down very considerably. The independence of masonry unequally charged was a leading idea in Byzantine construction; indeed, it is obviously necessary when the quantity of mortar is so great that the brick at times becomes secondary in height to the joints.

Brick, moreover, was the material preferred in the construction of churches; it lent itself best to all the caprices of the architect; and as the interiors were always lined with marble and mosaics, or decorated with paintings, such walls were the most suitable for the reception of these kinds of ornamentation. In countries abounding with good building stone we find the architects preferring to use brick. The forms of the bricks varied infinitely in Byzantine times, but the ordinary brick was like the Roman, an inch and a half in thickness, and was always laid upon a bed of mortar, at least half an inch in thickness. Moulds were used for the pieces forming cornices, and the shafts of columns when of this material were built of circular bricks.

In fact, brick-making was a feature of the period, and it is not surprising that the Byzantines took great pains with their fabrication when it is remembered that they were employed in their military as well as in their ecclesiastical and domestic architecture. The core of the wall was naturally of concrete, as in the Roman period, but the manner in which the bricks of the casing were arranged contributed greatly to the decoration of the

exterior of buildings. They were laid, not always horizontally, but sometimes obliquely, sometimes arranged in the form of the meander fret, sometimes in the chevron or herring-bone pattern, and in many other forms of similar design, giving great richness and variety to the façades, as may be seen in the churches of Thessalonica. Further, the universal use of brickwork made the Byzantines pay great attention to their mortar, so much so that it remains at the present day as hard as that in the best buildings of Rome itself. It was composed of chalk, sand, and brick-dust. In vaulting, porous stones, especially pumice, were used; sometimes the domes were constructed of pottery, as at St. Vitale at Ravenna, where it is formed with urns and amphoræ placed side by side and grouted with mortar. It may also be said that Byzantine architecture was developed by the use of brick in the frankest and fullest manner, especially in domical vaulting, and that, further, an absence of preparatory and auxiliary work is remarkable. In this respect, M. Choisy remarks that, the "greater number of their vaults rose into space without any kind of support," (*i.e.*, without centreing) by the use of large flat bricks. Choisy further proceeds to say that it is quite a distinct system, not even derived from a Roman source, but Asiatic; and that Byzantine art is the Greek spirit working in Asiatic elements, for the dome on pendentives was invented and perfected entirely in the East. In the Byzantine system of vaulting, the vault surfaces gave the conditions of the problem and the groins or angles of intersections were of secondary importance; presenting a direct contrast to the mediæval buildings of Europe.

In regard to exteriors, from the time when the architect permitted the forms of the vaults and arches to appear in the exterior decoration of the façades, the regular entablatures of the Romans were abandoned, and in the church of S. Sophia we see the fully developed Roman style. For whereas in the older buildings of Rome, the columns and entablatures could be and have been removed without causing the ruin of the building, in S. Sophia the true Greek expression of truth in construction is reverted to, its columns and capitals being not merely ornamental, but really supporting the structure. In continuation of Greek principles the capitals even assume a novel form, appropriate to their new purpose of receiving the springers of arches, the voussoirs of which were always square, and not set in receding planes as in so-called Gothic architecture.

As Freeman says:—"The problem was to bring the arch and column into union,—in other words, to teach the column to support the arch." This was done by shaping the block of marble which formed the capital so that a simple transition from the square block to the circle of the column was formed." There were four main types of capital used by the Byzantines, and these are found in S. Sophia (see figs. A, B, C, D, and lithograph plate).

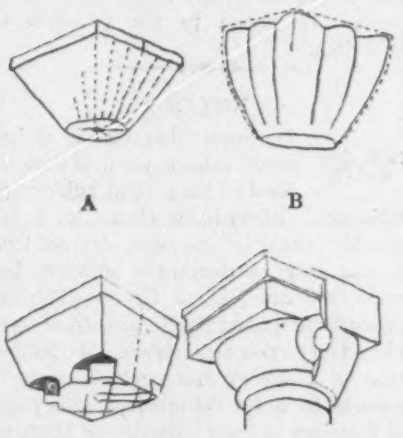
Further, as Swainson and Lethaby say, the numerous round shafts of S. Sophia exhibit a remarkable and beautiful structural expedient, by which the necking is entirely suppressed, and bronze amulets surround the shafts under the capital and above the base. This method prevents the shafts from sliding or splitting, and retains the lead beds from being forced out by the weight (Choisy), for large monolithic shafts were the more apt to split, as they had to be set up contrary to the direction of the quarry strata.

In Byzantium, ornamentation and structure were intimately united.

In regard to decoration, although columns of the richest marbles were taken from old buildings, the importation and sale of decorative materials, such as rare marbles, did not in the least decline. The Theodosian code in fact encouraged this branch of trade and industry, and the mode of ornamentation by means of coloured marbles was carried to a greater extent than ever before. The quarries opened by the Romans were carefully preserved for decorative purposes, and the workmen employed in them governed by imperial decrees issued specially for their guidance.

In the Byzantine period no church was founded in which mosaic did not add its splendour to that of sculpture and precious stones. The decoration of St. Sophia and the domes and apses of all the churches of Nicæa and Thessalonica show the perfection to which this art had been carried.

But, further, the use of natural stones in mosaics and inlaid pavements had been abolished, and the art of enamelling had



A B C D

arrived at perfection. All the mosaics which still adorn these domes and apses are of coloured enamel, that is to say, of glass rendered opaque by oxide of tin. The invention of gilt glass for the ground of pictures in mosaic was, nevertheless, anterior to the reign of Justinian.

To sum up the influence of material, we find that from the possession and extensive use of these rich marbles, a flat treatment, with an absence of mouldings, cornices, and modillions prevailed, while externally the use of coloured bricks is seen in conjunction with stone; that mouldings were subordinate to the decorative treatment in marble mosaic; and that the simple treatment of the exteriors in flat expanses of brickwork did not leave the same scope for mouldings as in other styles. Flat splays enriched by incised or low relief ornamentation were introduced, and in general mosaic and marbles were used, in a broad way, as a complete lining to a rough carcass; architectural lines were replaced by decorative bands in the mosaic, which was worked on rounded angles. One which was worked on rounded angles. One surface melts into another as the mosaic sheet creeps from arch to pendentive up to the dome; while the gold of the background is carried into the figures, and unity of surface thus always maintained.

In Byzantine buildings, then, the logical outcome of Roman methods of construction is seen; dome and vault are here freed from the Greek trabeated system, and advanced to the dignity of a style, through the acceptance of a novel principle and the discovery of an architectural expression suited to it. The use of rough and small materials involved the constructive principle of the arch, dome, and vault, and these forms were the elements of the new style; the development of which was further extended by the influence of material in the creation of fresh and expressive details adapted to its forms.

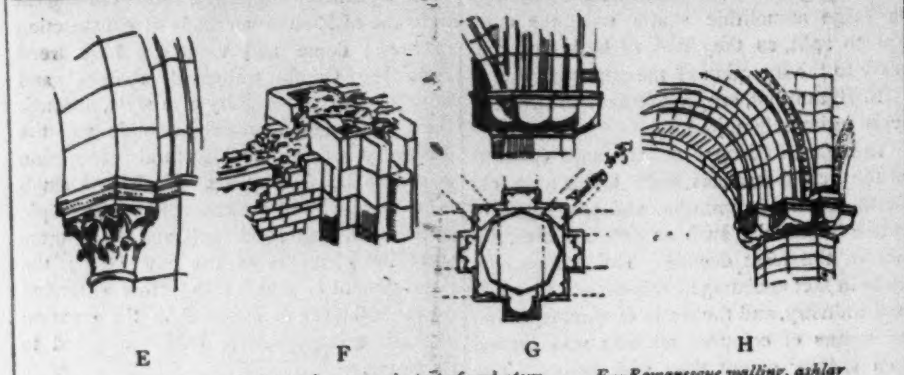
Chapter VI.

Romanesque: A Period of Destruction and Upheaval.

Given an ancient civilisation of vast extent, devoid of physical force, and recognisable only by the multitude of its monuments, some intact, others injured, partially destroyed, all unguarded, and most of them disused—a calamity which happens in due course to every great nation or group of peoples. Then, and in no poetical sense, but sadly prosaic in its realities, "all save the spirit of man is divine." But slowly, and with many a contortion, many a yawn, this same man throws off the sleep of ages and awakens to a sense of the treasure he possesses, of the wants he begins to understand, of the means to the ends he would attain. In his midst are ruins of vast edifices, some still standing among heaps of stones hewn and carved, of sculptured capitals and friezes, of monoliths of porphyry and marble, while his own shelter affords him little protection either in cold or sunny weather. What happened? As time went on he gathered up the smaller fragments and arranged them perhaps upon the foundations, still intact, of an ancient building, and as he gradually acquired a knowledge of the uses to which he might apply this and that fragment, he insensibly produced something that learned men of two hundred years ago dubbed Romanesque. This vividly explains the true birth of Romanesque, for it is certain that the quarry of the ruins of ancient buildings largely influenced the work done both in construction and decorative treatment, in that the new buildings were generally built from the remains of ancient Roman buildings in the vicinity, and for this reason, although extremely interesting from an archæological point of view, the buildings can hardly have, in the architect's mind at least, the value for study which a new manner in architecture, arising from new structural conditions, is certain to possess.

In Italy there were various early Christian edifices erected at Ravenna from the fifth to the seventh centuries. Ravenna was the principal city in Italy during this period, being the seat of the Exarch or representative of the Byzantine Emperor in the western part of his dominions. These buildings partake, naturally, of the elements of the then fully developed Byzantine style, in the same way as St. Mark's, Venice, the prototype of St. Front at Perigueux, was the result of the close connexion of these centres with the trade and commerce of the East.

Turning to France, we find that in Aquitania and the West of France during the eleventh and twelfth centuries the old traditional basilican plan was preferred and adhered to (except at St. Front); but the



E.—Romanesque capital to take square impost of arch-stone with rubble filling. F.—Romanesque walling, ashlar G, H.—Piers, choir aisle, Peterborough.

dome raised on pendentives became the common kind of vaulting, in conjunction with the single or aisleless nave. It should be noted, however, that the use of the Pointed arch occurred in the South of France sooner than in the North, and it is considered by some that it was derived from contact with the Saracens, who invaded this portion of France from 719-732. Further, the development of monasteries in the eleventh century gave a great impulse to civilisation and agriculture, and exercised great influence on architecture. Provence was, moreover, in the twelfth and thirteenth centuries the chief entrepot of the growing traffic from the East, and the highway by which artistic and other products of the Levant were dispersed through France and the North of Europe. Similarly, the development from Roman to Gothic art was accomplished by the ordeal of the destructive, though purifying, dissolution of the Dark Ages, whence the true spirit of Roman construction emerged, cleared to a great extent of the extraneous elements with which it had been so long encrusted. Up to the end of the twelfth century the Provençal architects had led the way, but at this period the lay architects of the North, seizing on the Provençal principle of the Pointed arch, soon developed from it the magnificent Gothic system of the perfected architecture of the thirteenth century.

Let us glance at England. After the departure of the Romans we find a wild and barbarous people whose only idea in art was naturally to use the materials which the Romans had quarried for their own purposes for the erection of their houses, baths, basilicas, &c., but as these remnants of Roman rule became scarcer, the use of wood, which was the natural building material of the time, was developed. We know from the chronicler Henry that churches were erected in this material quite up to Norman times. Now, the use of timber distinctly influenced the contemporaneous and succeeding architecture. The "long and short" work, the balustered windows, and the timber forms exhibited in such examples as Earl's Barton are properly copies in stone of a timber original* (see lithograph plate).

By the time of the Normans these timber forms had disappeared, owing to the increasing use of stone. Putting aside spasmodic efforts, the period of the tenth to the twelfth centuries is remarkable for the tentative employment of a new manner in construction and of a new material. The first is the principle of equilibrium which succeeds to that of inert stability as used by the Romans, and the second is the employment of dressed stonework in comparatively small pieces, and connected with mortar beds of considerable thickness. This was a method not before attempted, because the materials in use up to that time had not demanded it. By this new system of employment in materials, the whole current of architecture was turned to a constructive system which should answer to its needs, and which, after many tentative experiments, was to lead to the next glorious period of our subject, in which elasticity of structure is joined to the principle of equilibrium.

* This, however, has been disputed by saying that these forms are the descendants of the Classic column or pilaster.

NOTES.

The National Gallery. It appears that there is at last some chance of a portion at least of the ground adjacent to the National Gallery being cleared of buildings which ought to have been removed long ago, not only as dangerous adjuncts, but because the time is not far off when the National Gallery must be enlarged, if space is to be found for further acquisitions. Mr. Balfour stated on Thursday last week, in reply to questions from Dr. Farquharson, that plans and drawings of new barracks at Millbank had now been approved, and they would at once be proceeded with, and on their completion the removal of St. George's Barracks would take place. That is one step gained. It is not promised, however, that this will involve the removal of the recruiting depôt.

The Housing of the Wallace Collection. It appears that the committee appointed by the Treasury to consider the subject of the housing of the Wallace collection, has practically reported in favour of purchasing and retaining Hertford House for it. The other proposals considered were (1) to remove it to a building adjoining the National Gallery, (2) to remove it to a new building to be erected on a suitable and independent site, and (3) to remove it to South Kensington. The latter proposal is directly in contradiction to the terms of the bequest, one of which was that the collection should be a special museum and the contents be always kept together, "unmixed with other objects of art." In regard to Hertford House there is no doubt a suitability, as a matter of sentiment, in retaining the collection in the house in which it was brought together, but it seems impossible that it can be as well placed for seeing there as it might be in a building specially designed, nor does it appear to us that this scheme, either, is in accordance with another condition of the bequest, viz., "That her Majesty's Government shall agree to give a site and build thereon a special museum." It seems almost impossible to suppose that the testator in these words contemplated anything else than what their plain meaning implies; and though it may be argued, as the majority of the Committee have argued, that purchasing Hertford House is a fulfilment of the spirit if not the letter of the condition, it looks to us rather like an endeavour to do the thing cheaply. Nor is Hertford House in a very central or convenient position for the majority of the public.

The Prix de Rome Competition. During the last few days the drawings of the architectural competitors for the Prix de Rome have been on view at the Ecole des Beaux-Arts. The subject given was "A votive church at a shrine of pilgrimage, in a picturesque and mountainous country;" certainly a most fascinating subject. The church was to be on a hill 50 mètres above the plain, and to contain 2,000 persons. Below were to be two large establishments for thirty monks, connected with the church by two cloisters. Most of the designs are marked by a great care for regularity and symmetry, but show little imagination; the competitors seem to have been entirely under the dominion of geometrical ideas. Among the designs that of M. Blussen has a massive effect, but with a façade looking a good deal too much like a copy of that of St. John Lateran. M. Garnier's design shows some fine qualities, but the church is too small, and appears still more so by contrast with the disproportionately large tower. There is the same fault about M. Hulot's church, which is out of scale with the surroundings, though well planned. M. Duquesne is the only competitor who has risen decidedly above the general level, and to him the "Grand Prix" has been awarded. His design is really picturesque, though here again there is a good deal of imitative work, the façade of the Duomo of Florence having evidently been a source of inspiration. M. Duquesne is a pupil of M. Pascal. We may add that in the sculpture section the Grand Prix has been awarded to M. Legoffin, a pupil of M. Cavelier and of M. Barrias.

A New Dictionary of Architecture. We are promised a new Dictionary of Architecture from America. It is undertaken by Messrs. Macmillan & Co.'s New York house, under the editorship of Mr. Russell Sturgis. It is to include special articles by architects, sculptors, engineers, mural painters, and others, on their special subjects; also biographical and historical articles, criticisms of styles, practical and scientific construction, &c. The dictionary is to be largely illustrated, and in this respect no doubt it will be an advance on the English Dictionary of Architecture, and will be more popular; though we do not think it is likely in any other respect to supersede, or even come up to, that careful and trustworthy publication. Unfortunately, the English Dictionary of Architecture only exists in a limited number of copies, and there seems no probability at present of another edition.

The Tate Gallery. A correspondent of the *Times* has raised several interesting points in regard to the Tate Gallery. One of these is whether the Royal

Academy can legally house the Chantrey Collection in the Tate Gallery. It would certainly appear doubtful whether they can legally place the pictures purchased out of the Chantrey Bequest in the custody of third persons. It depends, of course, on the terms of the bequest, but we should think that to give the charge of the collection to other persons was a breach of trust. If these pictures can be placed at Millbank it would seem that they might equally well be handed over to the Corporation of Liverpool for custody. It cannot be said that the Royal Academy behaved well in the matter of the Gibson sculpture, and if the authorities at Burlington House are practically going to hand over the Chantrey Collection to the nation, it will be regarded as a tacit giving up of their trust.

Public Buildings at Berlin.

A large number of public buildings of some importance are to be taken in hand this year at Berlin. The Crown Authorities are about to commence the new Royal stables near the Palace; the Military Authorities are to extend the War Office in Wilhelm-street. The architects of the buildings are respectively Herr Ihne and Herr Vetter. Under the auspices of the Military Authorities a Veterans' Home is to be taken in hand in König-street, whilst in Krupp-street some large military depots are already in progress. In New Frederick-street the Ministry of Justice will be erecting some Law Courts, under the supervision of Bau-Inspector Moennich. The School Authorities are erecting a large gymnasium in one of the suburbs for the Frederick William School, whilst the Railway Administration has recently started the entire reconstruction of the great Stettin Station, from designs by Herr Bathmann. We do not hear this year of any new churches being taken in hand, though contracts will probably be invited for several small ones in the suburbs. Some new administrative offices and a Clergy Home are, however, soon to be commenced for the Church authorities. For the Nieder Barnim Division Herr Schwechten has prepared a design for Assembly Rooms, and the Municipality are giving instructions for the commencement of a new Children's Hospital, and also for a considerable extension at their gasworks. The date for commencing the new Provincial Museum has not yet been decided. This latter building will be the only one of considerable architectural pretensions to be taken in hand during the next few months. It will be carried out from the designs of the City Architect, Herr Hoffman.

Parliament-street Improvements.

In reply to a question asked in the House on July 29, the First Commissioner of Works said he expected to get possession of a large portion of the site between Parliament-street and King-street at Michaelmas, and should then proceed with the demolition of the property. The remainder of the properties would not come into the possession of the Government for some months longer, owing to inevitable delay in arbitration.

Hinged Stone Bridges.

We are quite accustomed to see iron or steel arched bridges hinged at the crown and abutments, but to treat a masonry arch in this manner would at first sight appear to be rather venturesome. In Germany, however, several bridges were built some few years ago on this principle, one of them having an effective span of 150 ft., and the result has been quite successful, both from a constructional and from an economical point of view. A very complete description of this method of construction was contributed by Mons. G. La Rivière to the *Annales des Ponts et Chaussées* soon after the bridges were built, and is well worthy of careful perusal. The author draws attention to several curious features in the design of these bridges, but by far the most remarkable is the introduction of the three joints in the masonry ring. These joints, which really act as hinges, are placed one at the crown and one at each abutment, and prevent, of course, the line of pressure deviating very much from the centre line of the arch ring, thereby removing all ambiguity as to the actual stresses. The rise of the arches in some cases is not more than $\frac{1}{10}$ the span, and no masonry backing is employed, the roadway being supported from the arch by means of thin spandril, or cross walls. The hinged joints are made by inserting sheet lead about $\frac{3}{4}$ in. thick, extending over only the middle third of the arch stone. At first it was thought that this joint should be made by means of bearing plates and pins, much in the same way as would be done in a steel arch, but this arrangement was subsequently abandoned in favour of the sheet lead.

New Electric Traction Systems.

Two new conduit systems of electric traction, the "Lachmann" and the "Simplex," have been attracting a good deal of attention lately. The main novelty about the Lachmann system is a curious device used to diminish leakage. The high-pressure conductor in the underground conduit is covered with a hood which acts like a diving-bell, and prevents water touching it, even when the conduit is flooded. Experiments on an experimental track at Hamburg have given very satisfactory results, and a trial track is being laid at Vienna. We are inclined to question, however, whether the loss by leakage on a conduit system is so serious as to demand so complicated a remedy. The "Simplex" system will prove a formidable rival to all other conduit and surface contact systems. The high pressure conductor in the conduit consists of a flexible wire cable which rests loosely upon insulators which are placed about 10 yds. apart. Contact is made with this conductor through a slot, $\frac{3}{4}$ in. wide, by means of a rigid arm, which carries an insulated wire connected to a brass shoe which rubs along the cable. One great advantage of the method of constructing the track on this system is that when once laid down there will be practically no necessity for ever disturbing the permanent way. The average cost of a mile of single track standard gauge tramway is given as 6,000*l*. This is practically the same as the price of an overhead trolley system, and there seems no reason why it should not prove as easy to work and keep in repair. The running of the car on the experimental track laid at Prescot which contains a curve of 45 ft. radius, has been favourably commented on by experts.

The Ader Recorder.

Amongst the practical instruments used in telephony the Ader receiver and transmitter are two of the best known. In France and Belgium they are almost exclusively used, and they are favourably known in this country. M. Ader has recently invented a novel form of recorder for submarine telegraphy, and on June 21 he exhibited and described his instrument to the Académie des Sciences in Paris. The Kelvin syphon recorder has for thirty years been practically the only receiver for telegraphic work through long submarine cables, but if the Ader recorder is as satisfactory in everyday work as it has proved itself in experimental tests, then it ought to be a successful rival. A fine wire, on which is fixed a small mirror, is suspended in front of a powerful electro-magnet. The smallest current, therefore, flowing through this wire causes it to be attracted or repelled. A beam of light is made to fall on the mirror, and is reflected on a moving strip of sensitised paper, which afterwards passes through a developing bath. A permanent record is thus made of the signals, which can then be easily read. With one of these instruments a speed of 600 signals was obtained on the Brest St. Pierre Atlantic cable. This compares with a maximum speed of 400 signals per minute with the syphon recorder. In another experiment on the Marseilles-Algiers cable (500 miles) a speed of 1,600 signals per minute was easily read. These recorders ought to enable cable companies to reduce their charges.

Life in Sewers.

One scarcely expects to find anything very recondite about "Life in Sewers" in a paper read before a "Literary and Philosophical Society." Indeed, one wonders that any one could be found brave enough to attempt such a subject before such a society; yet this is what Mr. H. Alfred Roeschling has done at Leicester. Nearly one-half of the paper is padding of a mild engineering type, but the remainder is worth perusal, if only for the *résumé* which it contains of the tests made by Dr. Alessi, at the Hygienic Institute at Rome, on the connexion between sewer air and typhoid fever. These tests exhibited in a striking manner the deleterious effects of sewer air in predisposing animals to the pathogenic action of typhoid bacilli. This does not mean that sewer air produces typhoid fever, but that in some peculiar manner it renders those persons who breathe it more susceptible to the attack of the typhoid bacillus when this is imbibed into the system. Sewer air, indeed, is remarkably free from germs, but it is none the less a powerful factor in the spread of disease.

Municipal Report, Shanghai.

We have received the Annual Report of the Shanghai Municipal Council to December 31, 1896. The Works Report of Mr. Mayne, the Engineer and Surveyor, mentions among other matters the completion of the new Central Electric Lighting Station, and of a Crematorium and Chapel at the Bubbling Well Cemetery; and the signing of the contract for the new Drill Hall and Markets, for which the necessary steel and iron work has been ordered from home, and the old wooden markets pulled down. Nine miles of private drainage has been laid, the main drainage of the Yangtsze-poo-road completed, and a new bridge 40 ft. wide, erected over the Yangtsze-poo creek. An Isolation hospital and a Fumigation Station are also among the recent works. The erection of a Refuse Destructor has been contemplated, but

has been postponed for further consideration, as it is not considered certain that the forms of refuse destructors as hitherto made will deal satisfactorily with Shanghai refuse (it is not stated why, or what is the peculiar character of the refuse). Other portions of the Report give a tolerably graphic picture of the struggles of a rather young colonial city towards a sanitary and orderly condition. Complaints are registered of the nuisance from coolies carrying night soil along Bubbling Well-road in uncovered buckets, and an order is made that they are to provide themselves with covered galvanised iron buckets of the municipal pattern, and the police are to stop all others. The traffic on the same road gives trouble; "an extra trooper" has been placed on it; 355 arrests for furious driving were made during the year, several foreign residents, it is noted, "show a very bad example to the natives" in this matter. Under the same heading, "Miscellaneous," we learn that housebuilding is on the increase, fifty foreign houses and about eleven hundred Chinese ones having been built during the year. The municipal authorities and their engineer seem to be working actively for the improvement of the city.

Hengrave Hall, Suffolk.

The contents of this house, which changed hands recently, will be dispersed by sale at auction in the current month. The pictures include paintings by Van Dyck, Teniers, Lely, and Kneller, and a portrait of Sir Anthony Browne, attributed to Holbein. Amongst the furniture are two chairs that had belonged to Cardinal Wolsey, a marquetry wardrobe dated 1691, and a clock which was once James II.'s. This fine old manor house was erected in 1525-38 by Sir Thomas Kytson, of London, merchant, who purchased the estate from the Duke of Buckingham, to whom it had been restored, on reversal of the attainder, by Henry VII. It forms an exceptionally fine example of early Tudor domestic architecture. It is built mainly of white bricks with stone dressings, the stone and lead being taken from certain religious houses round about. The principal windows, with the elaborated oriel resting on a corbel above the gateway, contain stained glass and armorial bearings.* The property passed to Thomas (Darcy), Earl Rivers, who married Mary, daughter of Sir Thomas Kytson; their daughter and heir, Penelope, brought it in marriage to her second husband, Sir John Gage, of Firle, Sussex, in whose descendants it remained during 200 years. Of the portraits by Van Dyck, one is a likeness of Lady Penelope. In September, 1893, Hengrave Hall, with its 4,500 acres, was sold by Lord Kenmare to Mr. John Lysaght, founder and head of the firm of John Lysaght & Co., of Bristol, Wolverhampton, and Sydney, ironfounders.

The Curse of the Advertiser.

It is to be hoped that the Society for Checking the Abuses of Public Advertising ("S.C.A.P.A.") has not failed to take note of the last outrage committed by that arch-advertiser Beecham. It appears that Nelson's old ship the *Foudroyant*, which, as our readers will remember, has been re-rigged and furnished as a specimen of an old line-of-battle ship, got ashore by some mischance. Beecham's agent on the spot seems immediately to have regarded her as lawful prey, and telegraphed to his principal to know what use he should make of the opportunity, receiving a telegram in reply to "do the best he could." Accordingly this impudent fellow took painters down to the beach and defamed the hull of the grand old ship with the words, "England expects every man to do his duty in swallowing Beecham's Pills." It would be difficult to imagine a more vulgar and disgraceful outrage on good taste and good feeling than in putting to this use a speech which is one of the greatest utterances of one of England's greatest heroes. It is gratifying to find that the law, on the suit of the owners of the ship, took the view that the act was an illegal trespass, and fined Beecham 50*l*. We only wish it had been 50,000*l*.

* See illustrations in the *Builder*, Aug. 23 and 30, 1884.

THE ARCHÆOLOGICAL INSTITUTE AT DORCHESTER.

The annual meeting of the Archæological Institute began at Dorchester in the forenoon of Tuesday, August 3, when there was a large muster of members at the Town Hall. The chair was taken by the Mayor, wearing his handsome (modern) chain of office. He was supported by the Rev. Sir Talbot Baker, Sir Henry Howorth, M.P., Chancellor Ferguson, Professor Boyd Dawkins, Professor E. C. Clark, General Pitt-Rivers, the Venerable Archdeacon Frere, the Rev. Dr. Cox, the Rev. Carson Manning, Messrs. Hilton, Micklethwaite, Mill Stephenson, Mansel-Pleydell, and other well-known supporters of the Institute. The Mayor contented himself with a few appropriately brief and terse words of welcome, and called upon General Pitt-Rivers, as President of the meeting, to deliver his opening address.

For upwards of an hour the veteran archæologist of Dorsetshire held his listeners' close attention whilst he gave a summary of his many years of patient and assiduous investigation of the Romano-British villages and other early antiquities on his estate at Cranborne Chace, together with an account of his more recent investigation of camps of the bronze age. He prefaced, however, his local remarks by a spirited defence of the genuine artificial character of the worled flints of the palæolithic age that he discovered a few years ago in the gravel of the Nile Valley, near Thebes, in the neighbourhood of Koorneh. Sir William Dawson has argued that the condition of these flints had been produced by natural causes, to which General Pitt-Rivers replied that Sir William had never seen them, and that if he had he was sure he would change his opinion. This criticism had appeared in a paper of the Victorian Institute, an association which General Pitt-Rivers described as "not altogether free from theological bias."

The patient work of careful record in which the General has been for so many years engaged in his systematic excavations is well known to all working archæologists through his three large quarto volumes of results, and he now proceeded to foreshadow the contents of his forthcoming fourth volume. The chief work of the last year or two has been the thorough exploration of four rectangular camps of the bronze or early Roman age. The ramparts of these camps were but slight, and were doubtless originally strengthened by wattled stockades. Their chief purpose would probably be to secure immunity from the attacks of wild animals. The occupants of these camps were a pastoral folk, and had sheep and oxen under their control. The dogs that they kept by them varied from those of retriever size to small terriers. Contrary to the recent contention of Sir John Evans, in the last and just published edition of "Stone Implements," these bronze age camp dwellers made frequent use of flint implements of various kinds, though not, of course, so frequently as their predecessors. In conclusion, he made a strong plea for greater detail and accuracy in investigations, and urged that landowners should never permit anything but scientific excavations of the many unopened barrows and camps that still existed in England.

Professor Clark proposed, and Professor Boyd Dawkin seconded, in eulogistic language, a vote of thanks to the General; whilst Sir Henry Howorth and Judge Baylis did the same kind office for the Mayor.

An adjournment was then made to another room, where the town maces (a not very remarkable pair, dated 1728) and several early charters of the town were exhibited.

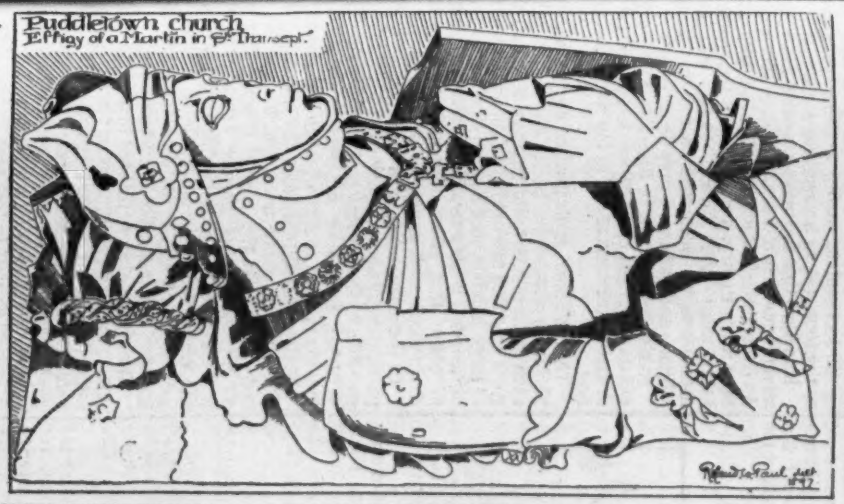
The perambulation of the town of Dorchester began at two o'clock, under the good guidance of Mr. H. J. Moule, M.A., the able author of "Old Dorset," and curator of the county museum. The members assembled at the Roman amphitheatre, just above the railway station, known as Maumbury Rings. The outlines can be easily discerned. The area is an oval about 200 ft. long, and 150 ft. broad. The sides are composed of chalk ramparts, which have now an elevation of some 30 ft. The external dimensions are, of course, much greater, and the accommodation for spectators on the graduated and sloping banks must have been very large. At the recent Jubilee demonstrations over 6,000 of the townsfolk and their friends assembled here, when it was at once seen how insignificant were those numbers as compared with those that might easily have been accommodated.

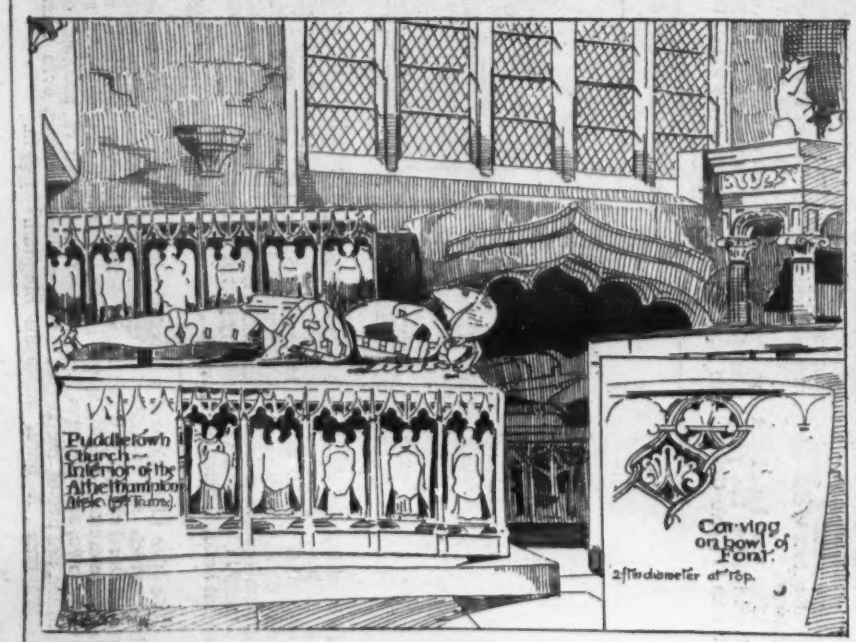
From the amphitheatre the party proceeded to the walls of the ancient Durnovaria of the Romans, or rather to walk along the shady avenues that now occupy their site, and which are thus, in the strict sense of the term, boulevards. The only fragment of the actual massive walls now *in situ* above the surface is at the top of High West-street, where a piece of walling undoubtedly Roman, 12 ft. thick by 12 ft. high, is protected from further mischief by an iron railing. An adjacent slab describes this fragment, and states that it is the property of the Town Council.

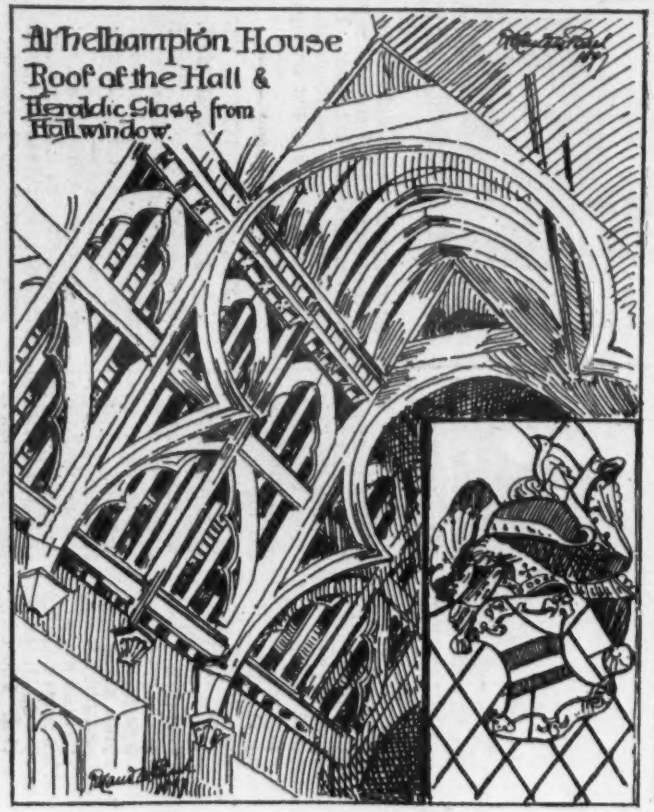
Just outside Dorchester proper is the adjacent township of Fordington, which possesses an interesting church with a good fifteenth century west country tower. Here again Mr. Moule proved himself a most able guide. The chief object of interest at the church of Fordington St. George is the stone carving over the west door, which represents the legend of St. George, at the siege of Antioch, charging the Paynim on behalf of the crusaders. One of the foe is transfixed by the saint's lance, and the rest take flight, whilst the Christian warriors are represented as kneeling in adoration behind their heavenly ally, having stuck their spears and kite-shaped shields into the ground. The whole is portrayed with considerable vigour, though the sculptor seemed incapable of imagining Saracen costume, and therefore contented himself in the representing both friend and foe in conical helmets, and in the general Norman garb so well known from its reproduction on the Bayeux tapestry. There are traces of Norman work in the south arcade, but the church is in the main fifteenth century, with an unhappy eighteenth century chancel and nineteenth century north aisle. There are a few good encaustic tiles. One or two bear the very exceptional device for such tiles of the fylfot cross. The pulpit is decidedly noteworthy, as it is a stone one of Elizabethan date bearing the regnal year 34 and the year of our Lord 1592.

The members, who now mustered a full hundred, next re-entered the town, and found their way to the church of St. Peter, the only one of the four old parish churches of Dorchester that has not been rebuilt. The church throughout is a fair example of Perpendicular work, with a handsome west tower; but here, as at Fordington, there is earlier work in the porch. The south doorway has bold mouldings of Transitional or late Norman date. There is a good Jacobean pulpit, and several remarkable monuments of seventeenth and eighteenth century dates. In the window-sills of the south choir chapel are two knightly effigies in fourteenth century armour. They are good examples, but look rather absurd in their present situation. Mr. Moule said that they had been brought to St. Peter's from the destroyed Franciscan church of Dorchester. These two effigies are generally said to be precisely similar in detail, but Mr. Mill Stephenson pointed out that the one in the south window, from the laminated sollerets, was about 1350, and the one in the east window with articulated sollerets was somewhat later.

The antiquarian section was opened in the evening (August 3) by Professor Boyd-Dawkins, with a paper on "The Present Phase of Prehistoric Archæology." The Professor's main argument was directed to show that the recent claims made by French antiquaries, and to some extent supported in England, as to the







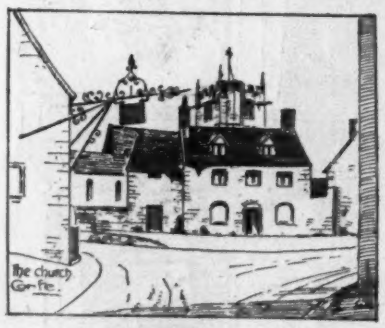
Sketches with the Archæological Institute in Dorsetshire.

bridging over of the great gap between palæolithic and neolithic man, cannot be substantiated. The assumption has been based upon discoveries in bone caves of the south of France. These discoveries were dealt with in detail, and it was argued that the separation of the strata in these caves was not proved. It was the opinion of Professor Dawkins, and he was subsequently fully supported by Sir Henry Howorth, that this missing link or bridge might eventually be discovered, but that, if so, the point of connexion would be found in southern Asia, or, possibly, even in Africa. An interesting link in his argument was that derived from animal life, when he proved, to the satisfaction at least of his audience, that the domestic animals of pastoral neolithic man did not have their origin from the earlier wild animals of Britain and the European continent, but were introduced from the farther East. The dog, for instance, was not a domesticated wolf, but partook more of the characteristics of the jackal. The Professor concluded by speaking of Dorsetshire as the El Dorado of pre-historic archæology, abounding as it did in absolutely unexplored works of early man, and made a strong plea for the systematic excavation of such an untested puzzle as Maiden Castle.

On Wednesday, August 4, the large party proceeded by train to Wareham. The old

town occupied the complete area, about 600 yards square, which is enclosed on three sides by great earth ramparts, which are roughly rectangular in their arrangement, the fourth side being bounded by the river Frome. On these ramparts an animated but friendly discussion took place, in which the local antiquaries, Messrs. Moule, Cunnington, and Blacket, and the visiting antiquaries, Sir Henry Howorth, Professor Boyd-Dawkins, and Dr. Cox took part. The upshot was that the balance of opinion was in favour of a pre-Roman date. The interesting little church of St. Martin aroused much interest. With a single exception, it was pronounced to be undoubtedly late Saxon. Mr. Micklethwaite said that it nearly resembled Deerhurst. The large church of St. Mary was also found well worthy of a visit. The early English lead font, the small chapels on the south side of the chancel, and a puzzling early inscription, apparently relating to a Welsh saint, aroused considerable interest.

Time was insufficient for any prolonged inquiries, for the party next proceeded in brakes to Corfe Castle. This grandly situated



fortress was admirably described by the Rev. O. L. Mansel. There was one healthy wrangle originated by Dr. Cox as to the non-Saxon date of certain herring-bone masonry, and the general opinion of the members of the Institute seemed to be decidedly against any part of the extant building being pre-Norman.

We give illustrations of some of the buildings which are included in the excursions round Dorchester, and which are of architectural interest. Athelhampton House, near Puddletown, and Wolfeton House, near Charminster, are two of the largest houses on the programme. A third, Melcombe Bingham was illustrated in the *Builder*, October 5, 1889. Athelhampton House was the home of the Martin family, and is a house of the fifteenth century with a later wing. There is a fine oriel at the upper end of the hall, which also has a curious timber roof with trefoiled principals, and interesting heraldic glass in one of the windows. We give a general view of the house from the west, and a sketch of the hall roof, and a part of the heraldic glass. Wolfeton House is also a fifteenth or early sixteenth century house, with a later addition on the west. There is a detached gate-house with flanking towers, some elaborately ornamented windows on the south front, and interesting examples of late ceilings in the later part of the house. Work of the humbler kind occurs at Corfe and Wareham, and we give sketches of the manor or "Mansion" house at Corfe, the old iron sign of the Bankes Arms and the church tower, and the picturesque view down the village street with the castle ruins in the background. Puddletown church contains the monuments, in its south transept, of the Martins of Athelhampton House, and we give a view of the transepts and a sketch of part of an alabaster effigy with a collar of suns and roses. The font is Early and curiously ornamented. Char-

minster Church has a Late tower of sturdy proportions, ornamented with an initial T for Sir Thomas Trenchard, its builder. The Abbey of Sherborne, visited on Thursday, was described and illustrated in the *Builder*, April 3, 1897.

THE DECIMAL SYSTEM IN ENGINEERING MEASUREMENTS.

THIS was the title of a short paper read recently by Henry Riall Sankey, Capt. R.E. (ret.), M.Inst.C.E., at the Engineering Conference of the Institution of Civil Engineers. The paper was as follows:—

Broadly speaking, the decimal system is used in engineering in this country whenever calculations other than mere checking have to be made, or when very accurate dimensions have to be expressed; and in either case, in mechanical engineering, the decimals are generally those of the inch, its square, or its cube. The reason of this is fairly obvious. As regards calculations, decimals are, on the whole, far simpler than vulgar fractions, and they allow of the ready use of the slide rule or Tables of logarithms.

It is true that occasionally simple vulgar fractions have to be dealt with, as, for instance,

one-sixth in the case of the formula for the strength of a rectangular beam. In such cases the vulgar fraction would obviously be used; to convert to decimals would correspond to using a slide rule or a book of logarithms to multiply six by five or some such simple sum.

In the case of accurate dimensions in mechanical engineering, $\frac{1}{64}$ in. is far from being a sufficiently small dimension; hence the use of the terms bare and full, and as, for interchangeable work, such vague dimensions are very unsuitable, recourse is naturally had to the use of $\frac{1}{100}$ in. and $\frac{1}{1000}$ in. The writing down of accurate dimensions is also very cumbrous, even when they can be expressed by $\frac{1}{64}$ in.

Compare, for instance, 11 in. + $\frac{14}{64}$ + $\frac{3}{64}$ + $\frac{1}{64}$ bare with its decimal equivalent 11·98 in. No doubt the same dimension may be more briefly expressed as 11$\frac{33}{64}$ in., but this form is not generally used in practice, and there are obvious reasons why this should be so.

It will be observed that the decimal expression has only been carried to the second place, and this is because the uncertainty is $\frac{1}{64}$ in. "bare" is of the order of $\frac{1}{100}$ in. If the decimal expression is extended to the third place, an order of accuracy is reached, expressed by $\frac{1}{1000}$ in. on the binary scale, fractions which are not practically workable.

When dimensions of no special accuracy have to be stated, the natural tendency to successively divide the unit by two gains the upper hand. Notwithstanding this tendency and the prevailing custom, it can scarcely be doubted that it would be preferable to state all such dimensions in decimals of an inch.

If decimals of an inch are adopted the system is still incomplete, owing to there being 12 in. to the foot, 3 ft. to a yard, and so on.

It is here that the metric system has a great advantage—it is a decimal system throughout. As experience in such a matter has more value than mere theory, a statement of the results of introducing the metric system of linear measurements into the works of Messrs. Willans and Robinson may be of interest.

In the first place it is desirable to say a few words about the class of work and method of manufacture carried out at the works in question.

The Willans central-valve engine and the Niclausse water-tube boiler are manufactured each in certain definite standard sizes, and the parts required are made to gauge and template in large batches, and have to conform to fixed dimensions within specified limits of accuracy, in order that strict adherence to the interchangeable system may be maintained.

In the machining and examination of the parts, gauges and templates are used, as far as possible, to the exclusion of the measuring rule. Whether inches or millimetres are used is, therefore, not a matter of much importance.

At the marking-off table the measuring rule is, of course, more used, and the question of convenience in the unit of measurement, and its divisions, is of greater importance; the parts are, however, dealt with in batches, and the convenience or otherwise of the unit of measurement, and its divisions, tells once, only, for each dimension for the whole batch.

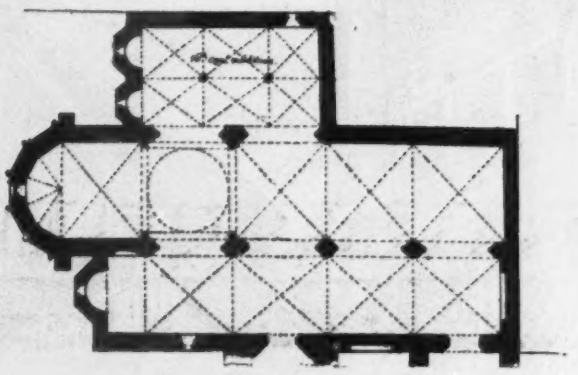
The circumstances that led to the adoption of metric linear measurements are not of general interest, and for reasons which need not be entered into here they were only applied to the Niclausse boiler and to certain sizes of the engine. The earlier sizes being still made to drawings figured in feet and inches; thus the two systems are concurrently at work in the same shop.

There would have been no advantage in re-figuring these drawings with equivalent millimetres, and to make new parts to millimetres to interchange with old parts made to inches would be impossible without going to several places of decimals. The old gauges and templates were marked with the millimetre equivalent to the third place of decimals; but this was merely to accustom the men to sizes expressed in the new system. It may be mentioned that the men were supplied with rules marked with millimetres on one side and inches on the other.

The expense involved consisted principally in providing a complete set of gauges. New templates and jigs had also to be made, but only a portion of their cost is properly chargeable to the introduction of the new unit, as the greater number of them would have been required in any case.

The only difficulty met with has been in connection with the screw threads. Hitherto the ordinary Whitworth and gas threads have been retained; but, for reasons connected with the manufacture of the engines abroad, the body of the bolt or stud is turned larger than usual, the excess being 0·3 millimetre for ½ in. Whitworth, and 2 millimetres for 1¼ in. Whitworth; intermediate sizes are in proportion, all being brought up to even millimetres. The bored holes are then able to take the corresponding screw cut to the standard used by the French makers of the engine, who use the thread of the Société d'Encouragement, which is slightly larger than the Whitworth, and which, it is stated, promises to become universal in France; it is now adopted by the French navy and railways.

Church of "St. Nicholas of the English," Nicosia, Cyprus (now a grain storehouse).



"St. Nicholas of the English," Nicosia, Cyprus. Plan

The metric dimensions were introduced in ay, 1893, and, after four years' working, the llowing is the result :—

No difficulty has been experienced in getting aughtsmen to use the new measures. No rious mistakes have been traceable to the ange, and very few minor ones. The aughtsmen are practically unanimous in vour of metric measures, finding it easier to sign, to check, and to read millimetre draw- gs. Taking all fractions into account, little re than half the number of figures formerly ed are now required to express a dimension. average case would be 3 ft. 1⅜ in., which, a millimetre drawing would be figured 0 ; and an extreme though possible case is L. $1\frac{3}{32} + \frac{1}{64}$ in. bare, which becomes 942·4.

The need to use decimals of a millimetre is ry infrequent, but in the case of inches the e of fractions is, of course, the rule. A linder, for example, might be figured t. 6 in. on an inch drawing, and 770 on millimetre drawing ; the piston body ust have a certain clearance, say $\frac{1}{32}$ in. in one e, or 1 millimetre in the other, in which e it must be figured 2 ft. $5\frac{1}{16}$ in. on the inch awing, whereas on the millimetre drawing e dimension becomes simply 768, and the e of fractions is wholly avoided.

The proportions between dimensions are re readily appreciated when expressed in llimetres ; thus the ratio between 27 milli- tres and 49 millimetres is much more easily prehended than between $1\frac{1}{16}$ in. and $1\frac{1}{16}$ in.

A point of some importance is that the ordi- ry foot and inch ticks or marks are not re- red, and with them disappears the possibility having 2 in. added to each 10 in., or deducted m each foot in a dimension. A case of this d occurred in which two 13 in. flanges in- ded to come together were shown on dif- ent drawings ; in one of them a tick was roduced after the one, and that flange was de 1 ft. 3 in.

With millimetres a cypher might possibly be t in, or omitted ; but a dimension ten times big or too small, would at once be noticed absurd.

In the drawings, scales 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{10}$, and occa- nally of $\frac{1}{25}$, $\frac{1}{50}$ are used. It is found that s number of scales is amply sufficient.

No mistakes have been made in marking off rk to millimetres. The men preferred the system at first, the new figures conveying le idea of size ; but they are now much in vour of the millimetre, and find drawing so ured easier to read. The shop where the ficulties of the change would be most felt is t in which the tools and gauges are made ; foreman says that it was a little awkward the outset—for about two days.

In the work's manager's opinion, the metric tem would prove even more advantageous shops where measurements are taken from rule than where gauges are used. He con- ers it easier to teach men the use of the rule h the metric than with English measures.

HÔTEL METROPOLE, FOLKESTONE. — Messrs. berts, Adlard, & Co., ask us to mention that they cuted the slating on this building, which was cribed and illustrated in our last issue. Claridge's phalte Company covered the principal flat por- ns of the roof.

THE MEDIÆVAL ART OF CYPRUS.

AN effort is being made to institute a museum of Mediæval art in the island, and perhaps if the subject were better known in England some influential support might be obtained for the purpose. The immense collections of fragments of sculpture, marble doorways, windows, coats of arms, sepulchral monuments (some bearing the familiar names of Berkeley, Nevill, &c.) which lie about the towns of Nicosia and Famagusta uncared for, and in imminent danger of destruction, are more than sufficient to fill an important museum of art. It seems incredible that the art-loving public of England should allow so rich and varied a collection to remain almost unnoticed and in ever-increasing danger of total destruction. At the present time, it is currently reported, the priceless remains of Famagusta are being used as a stone quarry for Port Said. The miserable natives of the island have not, of course, any compunction in destroying as much as they can of the beautiful old French and

Part of Vault of Cupola, "St. Nicholas of the English."

Venetian houses, many of which lie more or less in ruins. The splendid churches of the fourteenth and fifteenth centuries remain in fair preservation in cases where they have been converted into mosques ; but as mosques they receive no attention or repairs, and only the sound construction of the middle ages insures their continuance for another century or two.

The church of "St. Nicholas of the English," in the centre of Nicosia (capital of the island) is now in the hands of the English Government, and used as a storehouse for grain. It is suggested that this most beautiful building, a veritable museum of the finest Gothic art in itself, should be converted from its present deplorable, squalid condition, into the museum in question. There was, at one time, a desire on the part of many Anglo-Cypriotes to turn it back to its original use as a church, for the use of the English residents, but since the building of a small modern church outside the town, such a project is impracticable. The building is admirably adapted for a museum, and its position in the centre of the town, close to the splendid cathedral (now a mosque) and to the other churches, would give Nicosia a sort of public building, the first of the much needed ones which the town would possess.

It is needless to point out the many advantages to the island which such a museum would confer. It would be of considerable educational value to the natives, in addition to forming an attraction to visitors who are now beginning to include Cyprus within the regular Levantine tours.

The art and architecture of the Lusignans is second to none in point of style and interest, and certainly there is nowhere in Europe so fine and complete a collection of examples of the period as in Cyprus. G. JEFFREY.

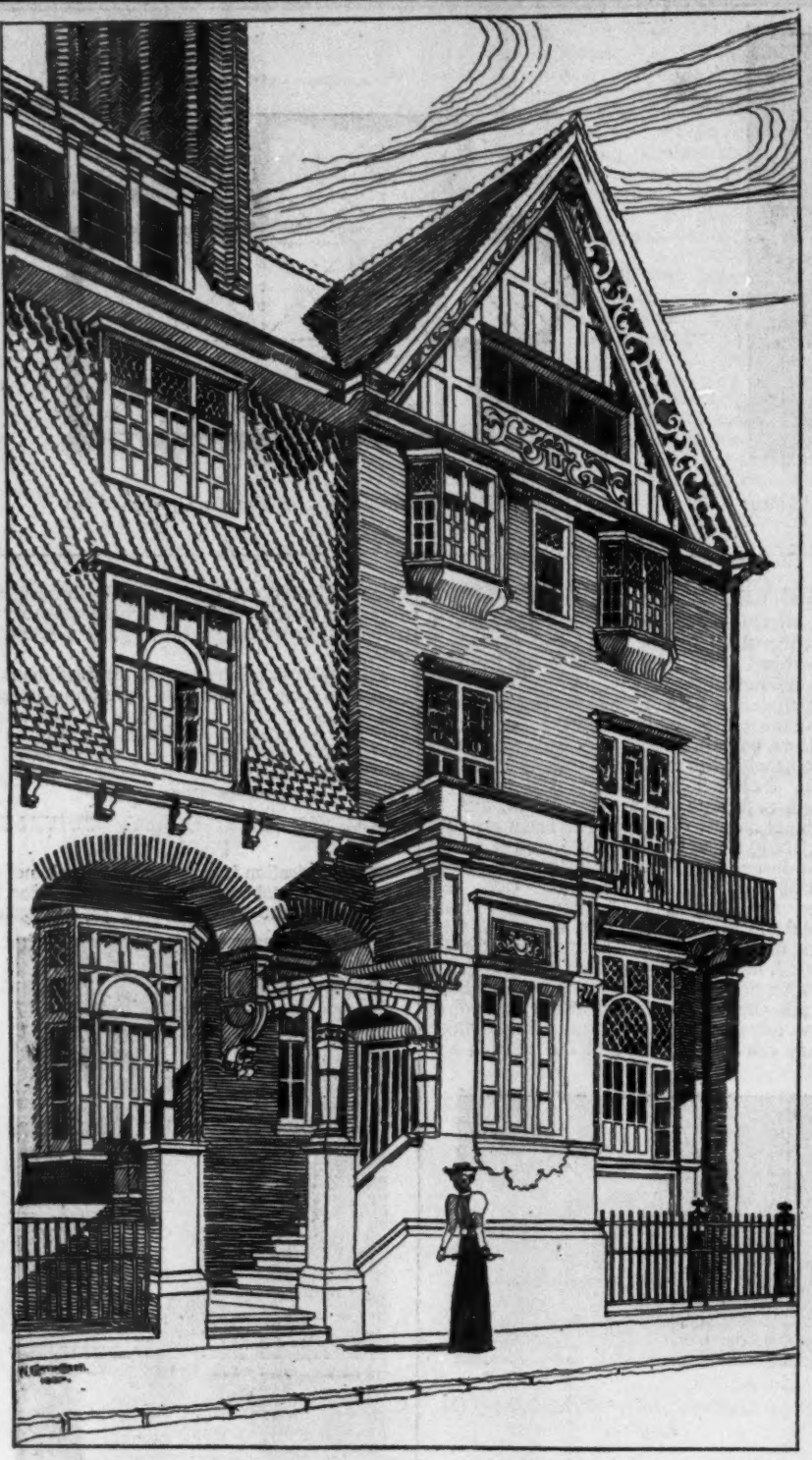
Jerusalem.

DOG-IRON FOR GRATE, CHIVELEY PARK.

THIS illustration is from a photograph not of the actual metal-work, but the model for it, from which the detail can be photographed

Dog-iron for Grate, Chiveley Park. Executed by Mr. Gilbert Seale from the design of Mr. R. W. Edis.

better, probably, than it could have been from the iron. It was modelled from the design of Mr. Edis, the architect, by Mr. Gilbert Seale.



Sketches of London Street Architecture.—XVII. The Farm House, Pont-street. Mr. C. W. Stephens, architect.

SKETCHES OF LONDON STREET ARCHITECTURE.—XVII.

THIS residence sketched here, and known as "The Farm House," in Pont-street, was built, in 1885, for the late Sir Herbert Stewart, whose death in the Soudan occurred, unhappily, before its completion.

It is built with red bricks and Broxley tiles, and has a frontage of 90 ft. All the reception-rooms are on the ground floor, including a spacious hall, dining-room, and drawing-room, and boudoir with panelled walls.

There is a billiard-room on second floor, with an open timbered roof. A wide oak staircase with massive carved balustrade leads from the ground-floor to the first and second floors of bedrooms.

Mr. C. W. Stephens is the architect.

TWEEDMOUTH MEMORIAL CHAPEL, INVERNESS.—On July 26 the memorial stone of this chapel adjoining the Northern Infirmary, Inverness, was laid. The building is already erected and has cost about £2,000. The architects were Messrs. Ross and Macbeth, of Inverness.

THE SOUTH KENSINGTON PRIZE DESIGNS.

THE usual exhibition of the work executed during the past year by the students of the various schools of art throughout the kingdom was open last week at the South Kensington Museum, and the drawings and models were well arranged in sections.

In the section of architectural design Mr. James A. Swan sent in a design for a provincial market hall which he had previously exhibited for the Soane medallion at the Institute of Architects. We do not know if the authorities are aware of this system of "pot-hunting," of foisting one design for several medals, but we should imagine it is contrary to the spirit under which the examinations are conducted. Mr. George A. Paterson, of Glasgow, obtained a gold medal for his design for a memorial chapel in the "Greek Thomson" manner, which was published in the *Builder* of May 15 of this year, so that we need not describe it further.

Silver medals were awarded to Mr. D. M. Stoddart for his design for a "Small Art Department," and to Mr. James McKissack for his "Museum and Art Gallery," a somewhat laboured design in the Classical style, with ornamented frieze, and badly proportioned dome.

By far the most pleasing of the premiated designs was that by Mr. William Haywood, of Birmingham, whose design for a "Fountain in marble and bronze" is original and consistent. The crisp pencil drawing was accompanied by a photograph of a plaster model, which has evidently been made as a study. It is an excellent idea for a small subject, and might in some cases be insisted on. A silver medal was also awarded to Mr. D. Stoddart for a design for a "Monument," a curious design with Gothic tendencies, treated with niches and pinnacles, and which might look better in execution than it does on paper.

Bronze medals were awarded, amongst others, to Mr. A. M. Gardner, for "An Art Department for a University," in a school Classic manner, which is an element we regret to see in many of the designs, although we could hardly expect otherwise having regard to the system under which the designs are produced; to Mr. J. Houston for a "Chapter House in the Gothic style," a badly drawn, coarse, and over-laden design, and the printing to which is so very "Gothic" that it can hardly be deciphered; and to Mr. Menart for "A Political Club," a design in good proportion, executed in pencil and Indian ink, but with an unworkable plan. Other designs, which we need not enumerate, exhibit the tendency to regard design in architecture apart from practical building and in much the same way as a wall-paper might be designed, or a picture painted.

The local personal examination in architectural design is one in which three evenings of five and a half hours each are given; on the first the rough sketch is made and the remaining time is given to working this out.

The subject this year was a "Chapter House to an existing English, Colonial, or Continental Cathedral which already possesses a cloister." Sixty-six students were examined, but the result was disappointing, especially in regard to what is done at the examination of the Institute of Architects, which nearly approaches it in scope. In fact some of the designs were quite *outré* in character.

In the section of "Architectural Drawings from Measurement," the gold medal went to Mr. William Haywood, of Birmingham, for his measured drawings of the church of St. Patrick, Patrington, executed carefully in pencil, and with perspective sketch; also to the same student a gold medal was awarded for his excellent drawings of the pulpit in St. Chad's, Birmingham, a pulpit which was originally brought from Louvain by Pugin.

Amongst the measured drawings were the wrought-iron gates at Newnham Paddox, All Saints' Church, Derby, and Scraptoft Hall. Other measured drawings, too numerous to indicate, were shown, many of them lacking the "constructive" feeling which is so essential.

In the sections of modelling design there were some excellent exhibits, such as the finger plate in gesso by Mr. J. Friedenson, the wall fountain by Mr. Frank Marriott, and the frieze in low relief by Mr. C. Sheehan.

In the division of "Historic Styles of Ornament" and of "Design" there were many excellent studies which rendered the Exhibition an interesting one, quite equal to previous ones in this respect.

ARCHÆOLOGICAL SOCIETIES.

SURREY ARCHÆOLOGICAL SOCIETY.—The annual excursion of this society took place on Wednesday the 28th ult., as recently announced in the *Builder*. On that day about seventy ladies and gentlemen assembled at Epsom under the leadership of Mr. Ralph Nevill. Sir W. Vincent, who had been previously announced to act as President, was unable to attend through illness. Carriages met the party at Epsom station at 10.40 a.m., and the first drive was made to Walton-on-the-Hill church. Here the visitors were received by the Rev. H. J. Greenhill, the rector. This church was founded by John de Waltune, whose tomb on the outside wall is dated 1268. The parish registers date from 1581. There is a chained Bible on an old oak stand. The tower is modern, having been erected in 1895. The principal object of interest in the church is the very charming old leaden font, which was illustrated and described in the ninth vol. of the Society's Transactions by Mr. J. L. André.

TITCHFIELD ST.W

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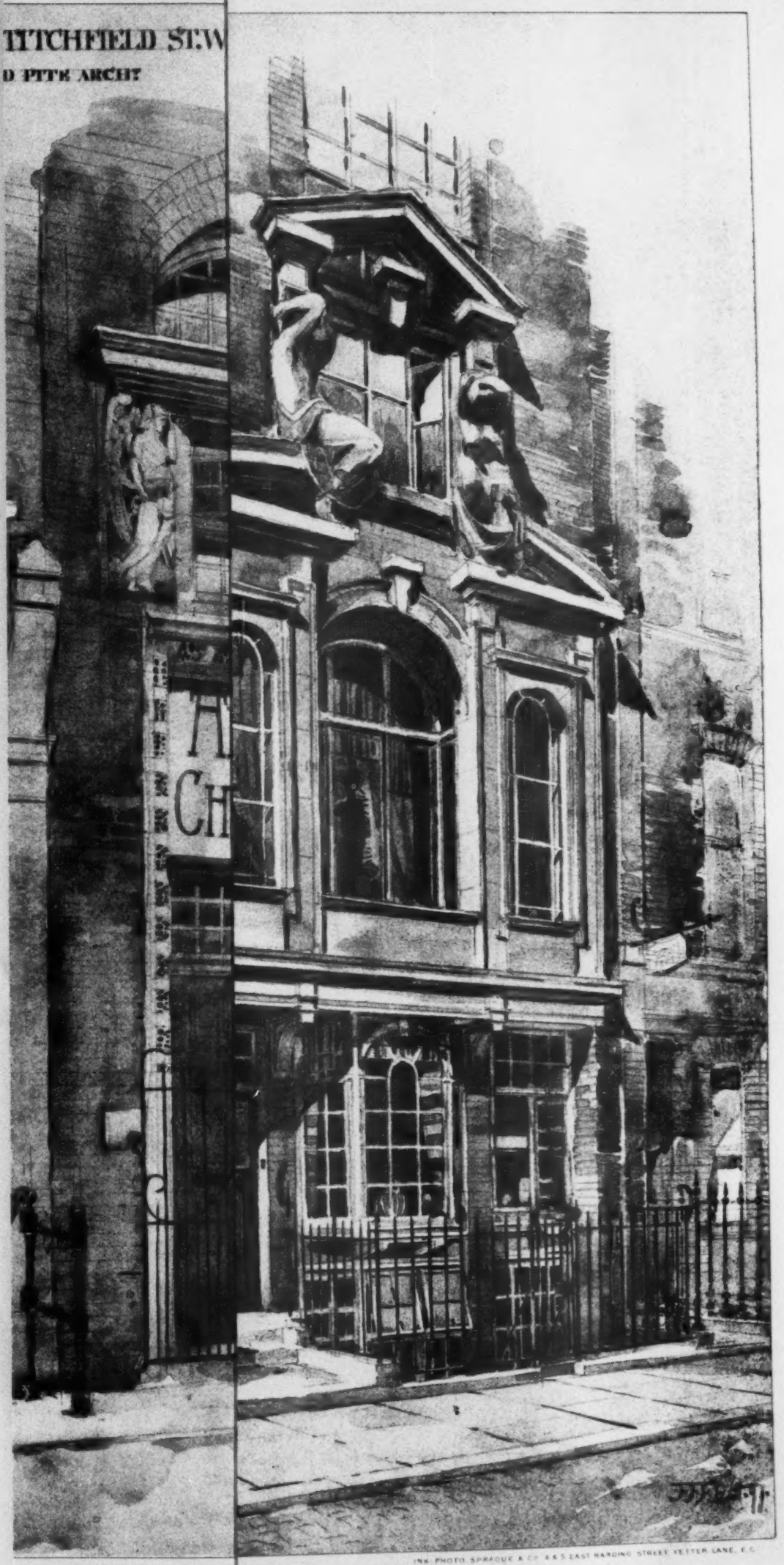

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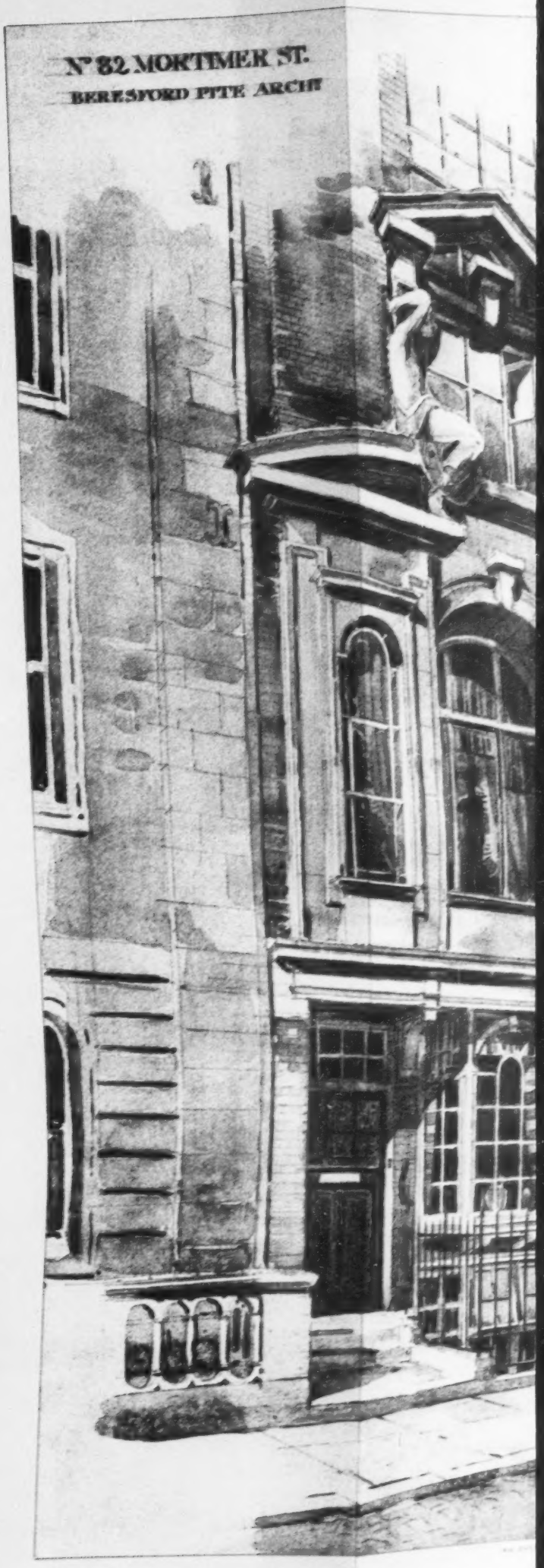

DETAILS OF SOME LONDON STREET FRONTS.—Mr. Beresford Pite, F.R.I.B.A., Architect.

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WOLFETON HOUSE, DORSETSHIRE.

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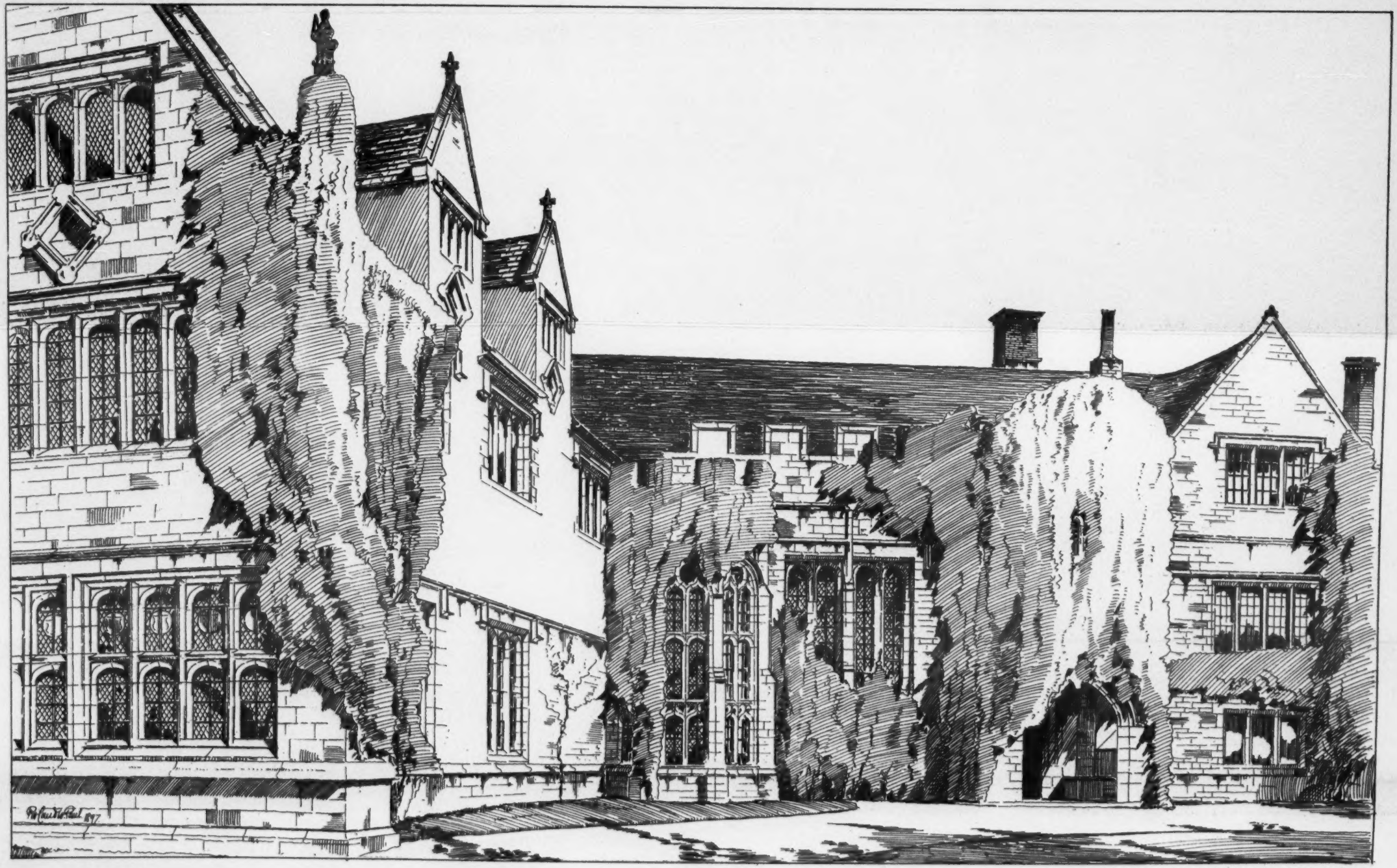

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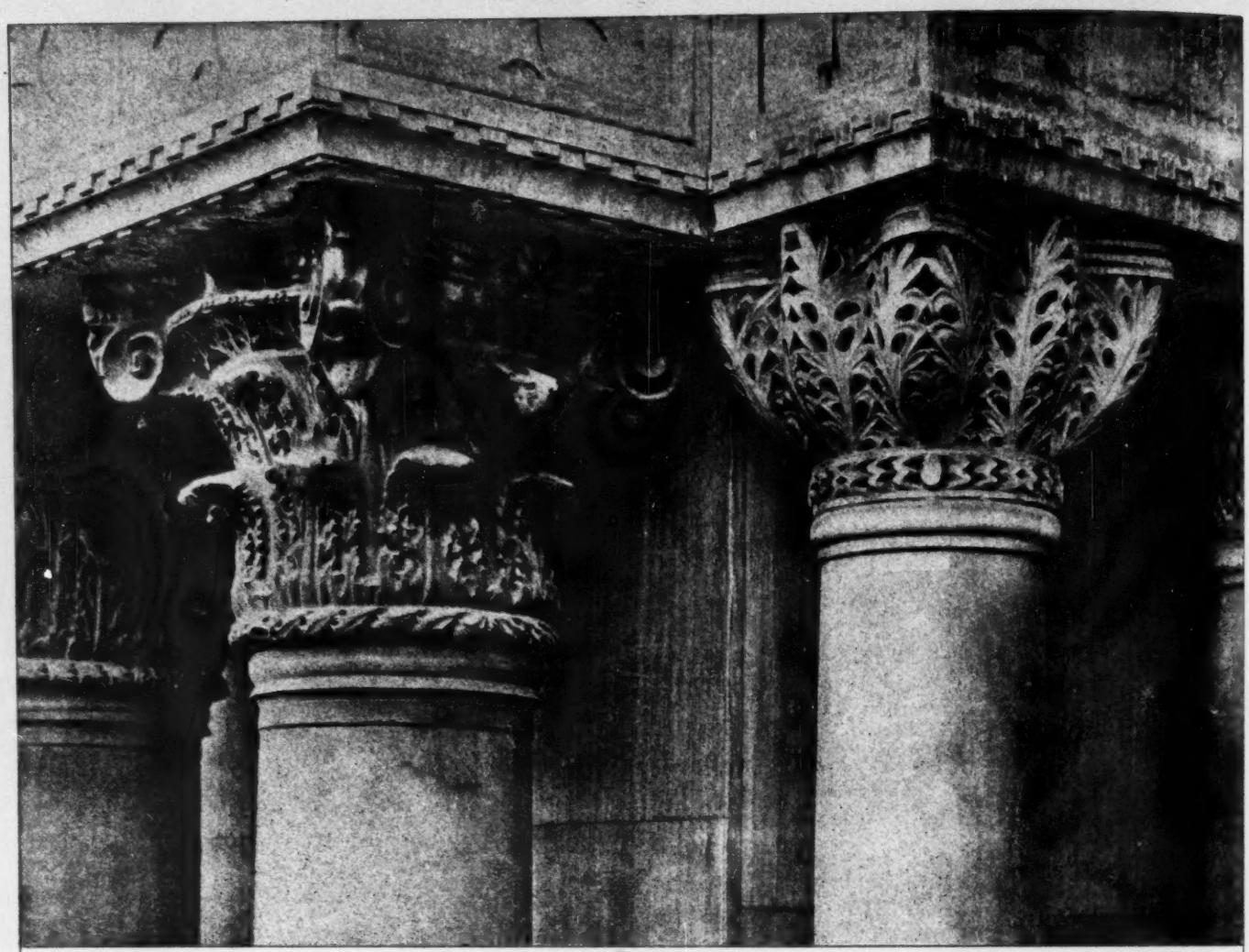
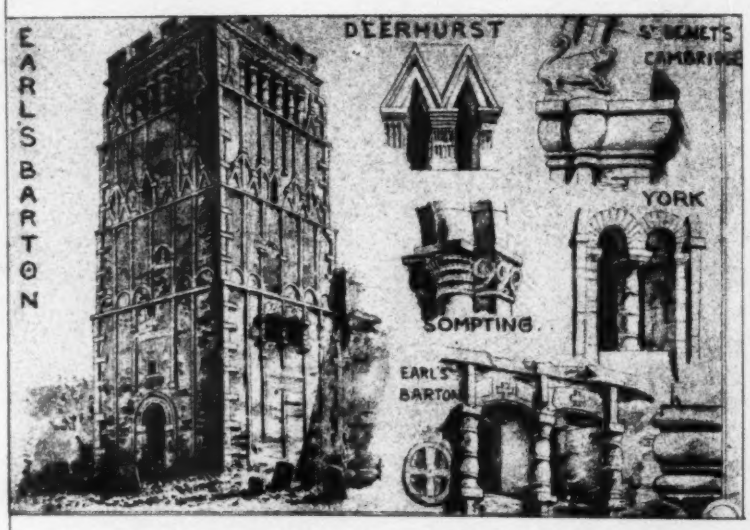
ATHELHAMPTON HOUSE, DORSETSHIRE.

ARCHÆOLOGICAL INSTITUTE EXCURSION IN DORSETSHIRE: TWO OF THE HOUSES VISITED.



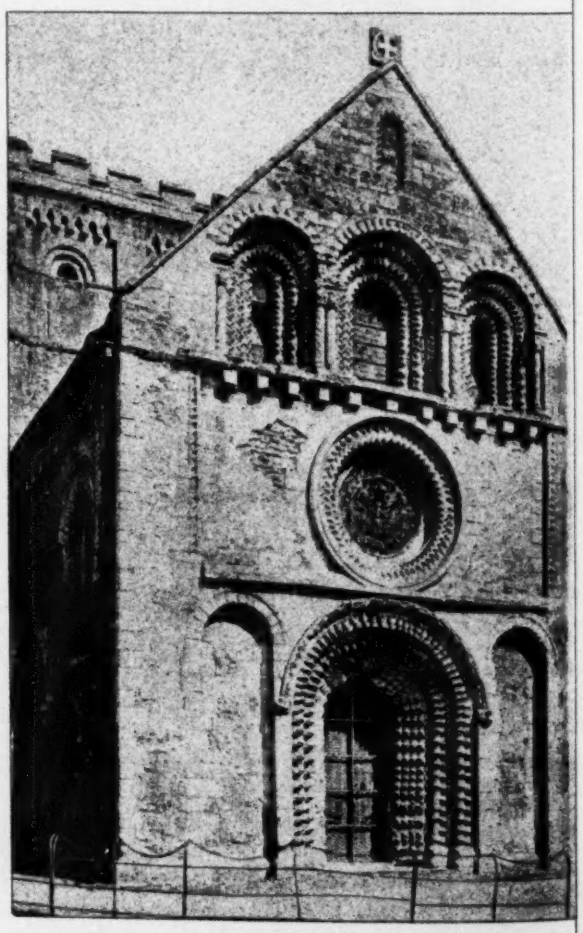
Byzantine Capitals supporting arches of square section.



Anglo-Saxon work, shewing timber influence of earlier work.

ILLUSTRATIONS TO MR. BANISTER FLETCHER'S ESSAY

"INFLUENCE OF MATERIALS ON ARCHITECTURE."



Iffley Church, Oxon.

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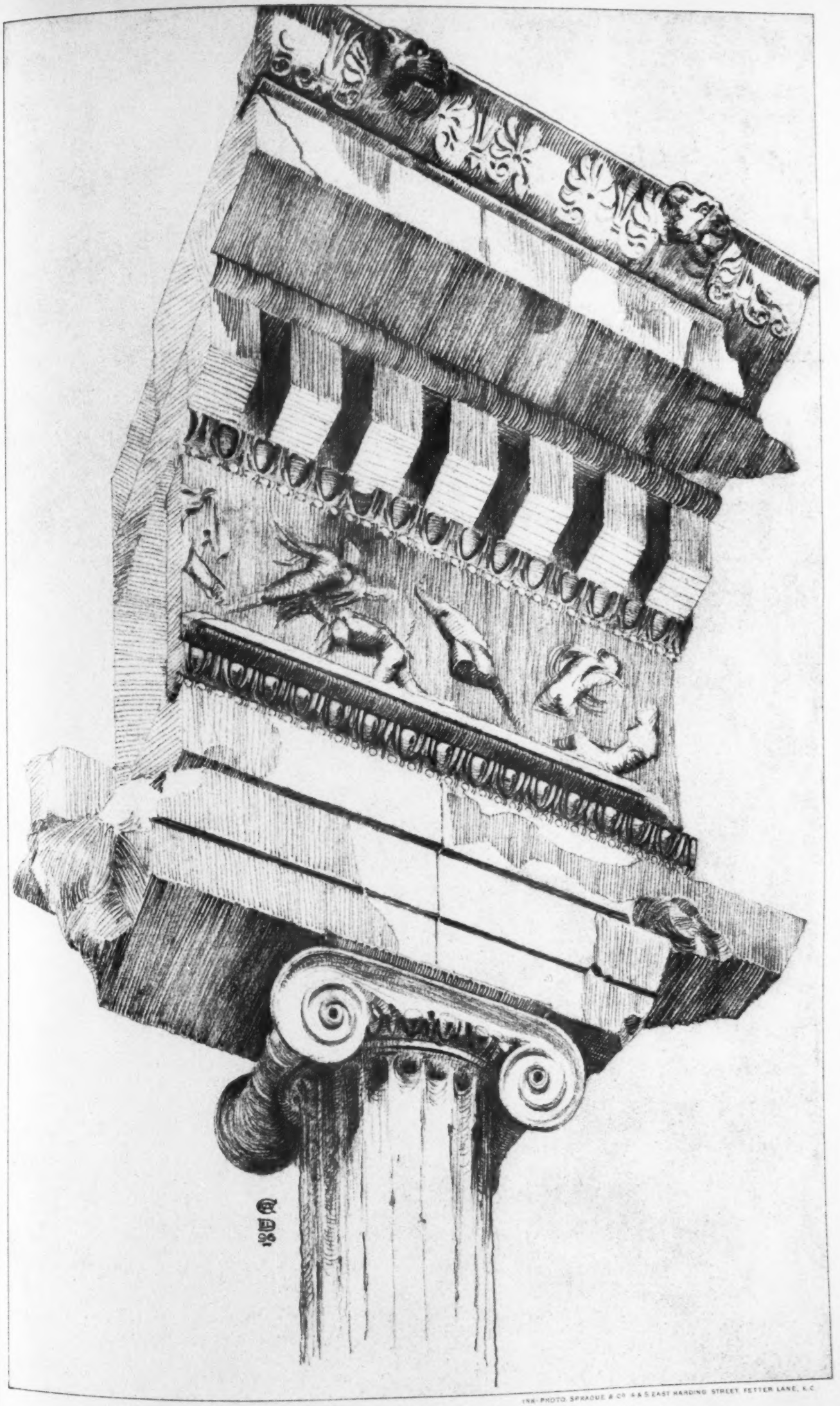
SHEFFIELD TOWN HALL: THE VESTIBULE.—Mr. E. W. Mountford, F.R.I.B.A., Architect.

SHEFFIELD TOWN HALL: THE COUNCIL CHAMBER.—Mr. E. W. Mountford, F.R.I.B.A., Architect.



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CAPITAL AND ENTABLATURE OF THE MAUSOLEUM, AS ERECTED IN THE BRITISH MUSEUM.

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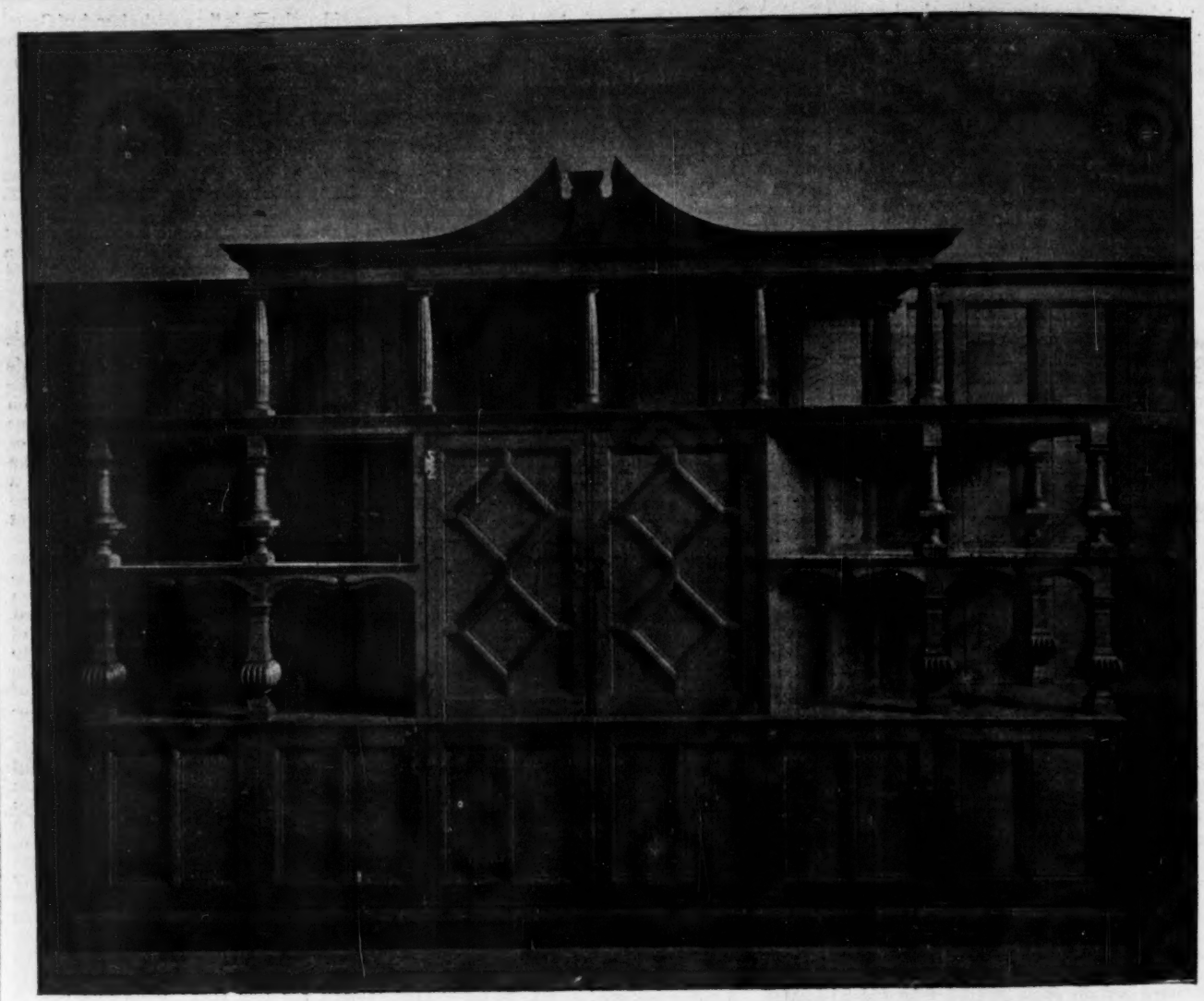
Mr. André on this occasion read a short paper on "English Lead Fonts." He said there were about twenty-five leaden fonts in England, situated in eleven counties all in the the south of England, and the date of most of them appears to be towards the end of the twelfth century when the Norman Style was beginning to give place to the Early English, and to this period the elegant font at Walton is to be ascribed. There is a good example at Brookland, in Kent, but the one at Walton is considered one of the best in England. It is the only one now existing in Surrey. Mr. André called special attention to the very delicate and graceful bands of foliage work which encircle it above and below the arches and also to the spandrels. The design presents a series of nine round-headed arches enclosing as many seated figures; the effigies are of three patterns equally repeated. The contour and pose of these figures is amazingly like that shown by throned persons in Anglo-Saxon and Norman MSS., the knees wide apart, the feet close together; the drapery is also very similar to early illuminations in the dispositions of the folds and general outlines. The diameter of the font is 20 in., and the depth 14 in. John de Waltune is said to be the founder of the church, but probably he was the rebuilder, as the parish is mentioned in Domesday Book, and the font is considerably older than the date, 1268. Mr. Ralph Nevill next conducted the visitors to the site of the Roman Villa at Chussex Plain, on Walton Heath. Scarcely any traces of the Villa are now to be seen, although they were very visible in 1856, when the late Mr. W. W. Pocock prepared a plan and wrote a description of the Villa, which are published and illustrated in the second volume of the Society's Transactions. The walls of the Villa appear to have been little more than a foot in thickness, and the foundations to have been laid about 3 ft. below the present surface, the pavement found being generally 1 ft. below the turf. The excavations made extended over a space of about 40 yards square. Of the spaces within the walls several of them retained a large portion of their pavements mostly executed in red tesseræ, 1½ to 2in. square, and 1 in. thick, of a coarse material, and apparently laid without any design. The pavements were laid on solid ground, with but a slight foundation of pounded brick under, and no appearance of any flue tiles. Besides the above excavations, and at a distance of about 100 yards, masonry and large paving tiles, 14 in. long by 10 in. wide, were discovered *in situ*, and considerable quantities of molten lead in the interstices, leading to the supposition that the building had been destroyed by fire. Mr. Nevill also pointed out some Roman entrenchments and encampments which were discernible on Walton Heath. The next drive was to Banstead, where a visit was made to the church. Mr. F. A. Heygate Lambert here described the building and its history. He said it was built of stone and faced with flint, and consisted of nave and two aisles, and on each side of the chancel is a side chapel. The church was of the thirteenth century, and on the arch over the north aisle is a stone bearing the date 1627 and the letters "E. L." This church was restored by the late Mr. Street. There is an interesting window in the south aisle at the west end, one of the last made in England before the Reformation, and erected by bequest of John Wood Craft, a former vicar, whose will, dated 1465, is extant. The list of vicars dates from 1202, and the registers from 1547. There are now eight bells, two being of recent date; the other six are dated 1585, 1613, 1638, 1661, 1756, and 1791. The old bells were removed by Edward VI., who also appropriated much of the church plate.* Mr. Street discovered three lancet windows in the east window and reproduced them. The third drive was to a large mansion called "The Oaks." Mr. Ralph Nevill here related the history and associations of the house. He said it formerly belonged to the Lambert family, the first of whom was standard bearer to King Henry II., and the house was then part of the Manor of Woodmansterne. In 1533 Jeffry Lambert succeeded to The Oaks. The house remained in the Lambert family till 1788 when it was sold to the then Earl of Derby. In the grounds there is an ancient tree mentioned by Manning and Bray. General Burgoyne built the drawing-room, the brick circular towers, of excellent detail, were added by the Earl of Derby. On June 9, 1774, a great *fete champetre* was held here—the first in England—in honour of the marriage of Lord Stanley with Lady Betty Hamilton. The ballroom, an elaborate temporary structure, is shown in large engravings, now in the dining-room, and a detailed account of it is given in the *Gentleman's Magazine* of that date. Mr. Nevill also mentioned that it was from this residence that the "Oaks Day" took its name. Garratt's Hall was next visited, and here the company was received by the owner Mr. F. Lambert, senr., and his son, Mr. F. A. Heygate Lambert. Here the ancient fireplace, bearing the date over it, 1584, and the fire-dogs removed from Shortes Hall, were shown. The fire-dogs are of large size and of Dutch manufacture. In the dining-room, which is surrounded by carved oak panels and carved oak fireplace, were laid out a large collection of old documents, pictures, prints, heraldic pedigrees, maps, swords, and other objects of local and historic interest. Mr. M. S. Giuseppi, the recently appointed Hon. Sec. here read a short paper containing a few notes on Burgh Heath and its connexion with Hubert de Burgh. The party soon after returned to Epsom, to the "King's Head Hotel." This house is mentioned by Pepys in his "Diary," under date July 14, 1667: "To Epsom by eight o'clock, to the Well, where much company; and to the Towne, to the 'King's Head,' and hear that my Lord Buckhurst and Nelly are lodged at the next house." Nell Gwynne's house next door (now a shop) is still to be seen. Many of the members lingered in the town after the company had dispersed, and several walked over to Woodcote, formerly the seat of the Baltimores, and to Durdans, the seat of Lord Rosebery.

KENT ARCHÆOLOGICAL SOCIETY.—The annual meeting of this Society took place last week, the district of Sevenoaks being visited. The two days' programme was inaugurated with the annual business meeting, which was held in the Club Hall, Sevenoaks, on the Tuesday morning, Earl Stanhope in the chair. In an exhaustive account of the meeting, the *South-Eastern Gazette* states that on leaving the Club Hall the gathering paid a visit to the parish church, where the members were welcomed by Mr. A. Laurie, churchwarden. A paper prepared by the Rector (the Rev. T. S. Curteis, M.A., F.S.A.) was read by the Rev. A. E. Brown, M.A. The church is dedicated to St. Nicholas, Bishop of Myra. It is a large structure, the length internally being 139 ft. 10 in. and the width 56 ft. The chancel occupies a space of 43 ft. and the choir 19 ft. 4 in. The church represents three consecutive periods of architecture. The nave consists of five arches dating from the later part of the thirteenth century, about 1280; the north aisle contains four two-light windows of the Decorated period, about 1320, while the easternmost part of the north aisle, the chancel, the south aisle and porch, battlements and tower are of the Perpendicular period. The difference between the external masonry of different parts of the church is very marked, and it is evident that the building has been the object of very free handling in former times, but as to the dates of the various alterations, the churchwardens' accounts give no very accurate information. An Act of Parliament was passed in 1811 for rebuilding the church, which was then in a ruinous condition. There are no details preserved as to what was done under this Act, the only entries referring to sums paid to the builders. There is evidence of the former existence of sedilia and niches, and the church at one period was almost surrounded by enormous galleries. There is one ancient record of interest, viz., the grant of a chantry to Henry de Gaud, Rector of the Church of Sevenoaks, by Boniface, Archbishop of Canterbury, in 1257. As there is apparently nothing in the church that can be referred to this remote date, Mr. Curteis holds the opinion that there was a building which was demolished to make room for the present edifice. If situated elsewhere, all traces of the old church have disappeared. A house adjoining the churchyard has within present memory been called the Chanter's House. 1450 may be the date ascribed to the font. The pulpit, an interesting piece of Caroline church furniture, was bought from the neighbouring church of Wrotham, from which it was removed. The monuments in the church are few in number, and are mostly of purely local interest. There is one of Lambarde, the perambulator of Kent. This was formerly over the grave of Lambarde in the parish church of Greenwich, and was removed to Sevenoaks when the building was demolished. The parish registers go back to 1559, but contain no remarkable entries. After luncheon the party visited Knole, where a paper was read by Mr. Philip Norman, F.S.A., who briefly described the historic building and the grounds in which it stands. On Wednesday morning Kemsing Church was visited, the party being received by the vicar (the Rev. T. C. Skarratt), who described the internal features of the building, the most striking object being the rood screen. The upper part is a restoration, but the lower portion is original fourteenth century work. The screen was restored in memory of Mr. Barclay Field. The new work is very elaborate, but is strictly in harmony with the old below it. In the masonry on the north side of the chancel there is the outline of the original priest's door, by which he entered on the screen in connection with various religious ceremonies, one of these being the reading of the Gospel and the Epistle to the people in the common tongue at Easter. There is also a door which evidently led to steps communicating with the one leading to the screen, but of these steps no traces now remain. In the chancel there are some very beautiful fragments of fourteeth century glass. The church is dedicated to St. Mary, although St. Edith is the patron saint of the village, the well therein being named after her. There was once a chapel or chantry of St. Edith, but Mr. Skarratt has been unable to discover where it was. Some people have the idea that it was joined on to the east end of the church, others that it existed in the south-east corner of the churchyard, distinct from the church. There was a celebrated stone image of St. Edith, to which poor people brought their corn to be blessed, while pilgrims came there to chant or say their prayers. In one of the windows may be seen the nimbus of a crown that may have belonged to a figure of St. Edith. Mr. Skarratt, however, thinks that the figure was one of St. Mary holding the holy child. There is a very ancient brass in the building to a priest-vicar of the church, buried underneath the present prayer-desk; also a tiny little quarry consisting of three oak leaves, this being distinctive of the parish. Other objects of interest are two coffin slabs, one with a Norman abbot's staff. In old days the church was served by the abbots of Bermondsey. In a lancet window in the south wall of the church there is a representation of the Virgin crowning the holy child, this being a specimen of some of the oldest stained glass, and dating from the time of Richard I. There are traces of a very ancient fresco on the south wall, but centuries of neglect and damp and coats of very strong whitewash have sadly eaten into it. There seems to be a trace of a wheel, suggesting a figure of St. Catherine. The aisle on the north side of the church is only seven years old, but the old stone work has been replaced. There is a very ancient window, in which are seen some fragments of fourteenth-century glass. These were picked up, having dropped from a window in the east end of the building. The font is the original one, being very old. The top, however, is Jacobean. Kemsing in olden times was a very important place, being situated on the Pilgrim's-road. The date of the church is unknown, but there is undoubtedly Norman work in the building, and it is possible that a Saxon church may have existed at the place. The interesting manor-house of Yaldham was next inspected, and Mr. G. Payne read a history of the building. From this it appeared that the name of the Manor in the Hundred of Wrotham denotes its antiquity, it being Ealdham—the old dwelling—sometimes called Eldenham or Aldham. There were originally three manors—East, or Great Yaldham (now called Yaldham Manor), West, or Little Yaldham, and Yaldham St. Clere (now called only St. Clere). The latter, in Ightham parish, were formerly owned by Sir Thomas de Aldham, who was with Richard I. at the siege of Acon 1191. He is said to have built the house at Yaldham Manor, and tradition states that Richard I. stayed there on his way to the Crusades. About 1327, the then owner, Sir Thomas de Aldham, died leaving three daughters. To the second, who married Martin Peckham (a descendant of John, who had been at the siege of Acon, and Hugh, Constable of Rochester Castle in the first year of King John), he gave Great Yaldham. To the third, who married John St. Clere, he gave his house at Ightham, then called Yaldham

* The present plate in Banstead Church will be found described in the eleventh volume of the "Surrey Transactions," by the Rev. T. S Cooper, hon. sec.



Side-board, Mayor's Parlour, Sheffield Town Hall.

St. Clere. The Peckham family possessed Yaldham Manor for about 400 years—from 1327 to 1713, and about 1733 it was bought by Mr. William Evelyn Glanville and re-united to St. Clere. The larger part of the house is said to have been burnt down in the fourteenth century, and the present hall is supposed to be the smaller one. It is 32 ft. 6 in. long by 24 ft. wide and the pintail roof rises to a height of 25 ft. Traces are to be seen of a minstrel gallery at the west end, the spaces between the beams being probably filled with lattice windows. There are signs on the rafters of the fire having been in the centre of the room. A window at the east end now gives a view of the interior. It was formerly tiled, and is said to have been used as a refuge by the pilgrims proceeding along the adjacent Pilgrims-road to Canterbury. Attached to this old house is a second ancient building, obliquely joined to it, and at a different level. The house, then in a ruinous state and used as a farmhouse, was restored about 1880 by the Rev. E. Boscawen Evelyn, and since by its present owner. Subsequently the well-known Ightham Mote was visited by the members, and a paper on the building was read by Mr. T. Oldrid Scott. Before returning to Sevenoaks the party inspected a collection of flint implements at Ivy Hatch.

Sewerage Works, Canklow, Rotherham.—The sewerage works which have been in progress at Canklow for some time have now been completed, and were opened on July 26. Inclusive of the land, the scheme has cost 2,200*l.*, and it is laid out for dealing with a population of 4,000. On its way to the tanks the sewage passes through a box containing a powerful chemical known as "Aelite," which is used for assisting the precipitation of the sludge, and preserves the sewage from decomposition. Having passed through several tanks, the sewage leaves the last division in a fairly clear condition. This is followed by filtration in the usual way. The power for the pumping-station is derived from a colliery near by. Mr. J. Platts was the engineer.

Illustrations.

THREE LONDON STREET FRONTS.

These three portions of street fronts illustrating mainly the doorways and the adjacent portions of the houses, with their sculptural and ornamental treatment, formed the subjects of a frame of three drawings by the architect, Mr. Beresford Pite, which was one of the exhibits in the architectural room at the Royal Academy. They represent respectively (taking the subjects from left to right) the front entrances of 77, Welbeck-street, a doorway in Great Titchfield-street, and 82, Mortimer-street.

These have all, we believe, been reproduced at different times in our pages from photographs, but the collective illustration of them from the architect's drawings is of some special interest, particularly as it formed a prominent exhibit at the Royal Academy.

VESTIBULE AND COUNCIL CHAMBER, SHEFFIELD TOWN HALL.

We give reproductions this week of photographs from two portions of the interior of Sheffield Town Hall, which was recently formally opened on its completion; and of which, as we need hardly remind our readers, Mr. E. W. Mountford is the architect.

One shows the entrance vestibule, the walls of which are lined with Hopton Wood stone; the floors are of dove and white marble, and the columns are red cork marble. Mr. Pomeroy's carving is a great feature of this part of the building. Not only are the figures in the upper parts of the arches very good, but the spandrels are filled in with very beautiful foliated work, the various plants and flowers being selected as symbolising the same or similar virtues to those represented by the figures, or at least, as being appropriate to them. The doors are of oak, and there is a very curious reflection of the wrought-iron gates at the opposite end of the vestibule.

The other view shows the Council Chamber, of which there is nothing to be said except that the moveable seats and tables were required by the Committee, so that upon special occasions they can be removed and the room used for other purposes. The ceiling was made from my drawings by Messrs. Jackson & Sons of Rathbone-place, W., the electroliers were made by Messrs. Singer & Sons of Frome, the furniture in the room was executed by Messrs. Johnson & Appleyard of Sheffield and Messrs. Cockayne & Co. of the same town, all from my drawings. The portrait of the Duke of Norfolk, which was in this year's Academy, shews him sitting in the Mayor's chair in this room.

The fixture in the Mayor's parlour, shewn as a separate illustration, is simply a sideboard, on which the Mayor for the time being may store anything he pleases. It was not quite finished when the photograph was taken, the four lozenge-shaped panels in the centre being carved with foliage representing the four seasons. The brass hinges and handles were made by Messrs. Singer & Sons, the thing itself being the work of the contractor, Mr. Edmund Gabbutt. E. W. Mountford.

ILLUSTRATIONS TO MR. FLETCHER'S PAPER "INFLUENCE OF MATERIALS ON ARCHITECTURE."

These are produced from photographs intended to illustrate points in Mr. Fletcher's essay printed on another page. The references in the essay sufficiently explain them.

ENTABLATURE OF THE MAUSOLEUM, BRITISH MUSEUM.

We had this sketch made some little time since of the appearance of the entablature of the Mausoleum, as it has been pieced together

and set up under Dr. Murray's direction in the Mausoleum Gallery at the British Museum.

The portion shown is not entirely composed of ancient work, but a portion of each feature is there in ancient marble, the remainder being fitted up by restored pieces to give the effect of the whole.

ATHELHAMPTON HOUSE AND WOLFERTON HOUSE.

THESE two houses are among the two largest and most interesting of the houses which were to be visited by the Archæological Institute during their excursion in Dorsetshire this week.

Some remarks will be found in the general remarks on the illustrative sketches, appended to the conclusion of the first part of our account of the Dorsetshire meeting, on page 108.

The illustrations are from sketches by Mr. R. W. Paul.

Correspondence.

To the Editor of THE BUILDER.

THE NATIONAL FREE WIRING COMPANY, LIMITED.

SIR,—A prospectus has recently been issued by the above company containing certain figures, which, in my opinion, are such as to mislead architects, builders, and the lay public generally, and I, therefore ask you to insert these few lines in your next issue, hoping that they may in some measure correct the misleading impressions which this prospectus conveys.

There are two ways of looking at this document. First, from the view of a possible investor, and, second, from the view of a possible customer of the company.

In the former case it will be necessary to analyse the figure of 12s. 4d., the estimated cost of installing a 16 c.-p. lamp, including all wiring, fuses, and switches and fittings. This figure, I understand, has been arrived at from the experience of the system as applied to Wallasey in Cheshire, a district composed chiefly of mills and similar class buildings, where the nature of the structure and the necessary close proximity of the lamps would allow of the wiring being carried out at a very low cost, and though doubting whether the figure of 12s. 4d. includes establishment and other charges, I am certainly of opinion that the work could not be carried out in London at anything like that figure. The following is an estimate of what, in my opinion, would be the lowest cost of the work. Wire, 4s.; casing, 1s.; fuses, 1od.; switch, 1s. 3d.; ceiling rose, 6d.; holder, 1s. 8d.; lamp, 1s. 4d.; shade, 6d.; labour, 5s.; total, 16s. 1d., and at even this figure the work would be of very inferior class, and quite unsuited to a decorated building. To this amount, moreover, would have to be added establishment charges and inspecting engineer's wages, as, if the latter be omitted, the labour item would be larger. I am of opinion, however, that the requirements of the fire offices, more particularly as they apply to 200-volt work, would be such as to add at least 10 per cent. to the foregoing cost, for the installations being directly under the eyes of the expert engineers attached to the offices at the head-quarters in London, would be most critically and carefully inspected by them.

But assuming the figure of 12s. 4d. cost to be correct, it would require, for example, 30*l.* 16s. 8d. to carry out an installation of fifty lamps, and for this the company would receive the sum of 2*l.* 10s. per annum, the minimum charge being one shilling per 8 c.-p. installed, and out of this handsome annual income would have to be provided depreciation, sinking fund, bad debts, directors' fees, rents, rates and taxes, and then a dividend.

A very few words will make clear the position of the customer of the company.

The estimated extra cost of the advantages of a free installation is to be 1d. per unit with a minimum of 1s. per 8 c.-p. lamp fixed; taking the case of a 50-lamp installation, the minimum charge represents the annual consumption of 600 units which at 6d. per unit would cost the consumer 15*l.*

Now a private householder who might avail himself of the services of this company, would be a person who would use care in his method of regulating his lights so as to be in a position to effect every economy, and from my experience his lighting account for 50 8 c.-p. should not exceed £10 per annum. The minimum rate on this amount would therefore be 1½d. per unit, or 25 per cent. on the current account—a very high rate of interest for the accommodation.

It therefore appears to me that the only class who would be likely to benefit in any way from the working of this company is the shop-keeper, whose lighting hours are necessarily long; but, from experience, these gentlemen would be more likely to face the first cost, and not pay a high rate on their lighting account for the accommodation.—I am, Sir, yours faithfully,

ADRIAN COLLINS,
A.M.I.C.E., Consulting Engineer.

ST. PETER'S CHURCH, DERBY.

SIR,—On my return from a brief holiday, I notice in the issue of your journal of July 17 your interesting article on Derby. Will you kindly allow me space for a few lines which may serve to correct one or two errors into which the writer has very naturally fallen with respect to St. Peter's Church, owing, doubtless, to his visit being compulsorily brief. The church is not being rebuilt, but is "undergoing restoration," or rather, the requisite repairs which have been too long delayed. The south aisle was repaired under my instructions two years ago, the repairs consisting only of the necessary replacement of the much decayed masonry of the external face of the walls, the renewal of the tracery and mullions of the windows, the partial rebuilding of the buttresses, and the resetting of the masonry of the parapet. Not a dozen stones in the interior have had to be renewed.

Unfortunately, these south aisle windows were in such a condition as to render necessary their entire renewal. They were, however, most carefully examined before any of the tracery was removed. There are old oak beams in the roofs dated variously from 1646 to 1672, and I think we may with tolerable certainty say that the south aisle was rebuilt (excepting only the south doorway and parts of the end walls) about the earlier date, and that the windows are very interesting and exceptionally good examples of this period. It is, in any case, perfectly certain that the tracery never had cusps, yet they are not unpleasing, and I think the sketch scarcely does them justice. The "remarkable distortion" to be observed in the windows of the west face of the tower, which is without doubt original, is easily explained. Formerly there was a semi-octagonal stair turret at the S.W. angle, the carved finial of which is still visible about the height of the springing of the belfry window arches, and the openings from it, now blocked up, are to be seen internally. Although the tower is 3 ft. wider from north to south than from east to west, additional space had to be found for this turret by reducing the width of the S.W. window of the belfry and by pushing both windows over towards the north. The finial above referred to gives the centre of the turret, which was apparently about 6 ft. in width externally.

Your readers may like to be reminded that in the churchyard is a rather interesting old grammar school, now used as a parochial room; and within the church a very fine carved oak chest, probably of Flemish workmanship and of the fifteenth century, and, curiously, it is almost a replica of that at Brancepeth Church, if I remember rightly, which was illustrated in your journal some time back.—Yours faithfully, W. HAWLEY LLOYD.

Birmingham, July 29, 1897.

TWICKENHAM PARISH CHURCH.

SIR,—I see in your last issue a notice about the proposed restoration of this church, in which the "refacing of the stone tower" is spoken of. As the architect responsible, may I say that there is not the smallest intention of refacing the very picturesque tower. The walling surfaces are generally in excellent preservation, and require very little doing to them. The dressed stonework of the windows, &c., is in a bad state; but here our object will be to do as little reparation as is consistent with making the work sound. J. OLDRID SCOTT.

SALISBURY CLOISTERS.

SIR,—The elevation of three compartments of Salisbury Cloister is very correct for *one*, but there are no *three* arches like these, as the upper circles are alternately *six* and *five* foiled; no two adjoining ones are alike. E. L. GARBETT.

*** Mr. Garbett is quite right; we had forgotten the fact at the moment, though we find that in the view of Salisbury Cathedral from the Cloisters, made by the Editor of this journal for the "*Builder* Cathedral Series," and published in our issue of July 4, 1891, the alternation of sex-foil and cinque-foil heads is correctly shown. We must now ask Mr. Scorer how he came to send what professed to be a studied drawing of three bays with so serious a mistake in it. We presume that he measured one bay and repeated it to make the three. It shows a great want of observation for any one measuring on the spot to overlook so important an architectural detail.—ED.

THEATRE ROYAL, WORTHING.—This theatre, which has been reconstructed on the site of the Old Assembly Rooms, was opened on Monday, July 26. The auditorium has seating accommodation for nearly a thousand people. On either side of the proscenium are three private boxes. Inside the main entrance the space previously occupied by the old crush room has been utilised as cloak rooms and refreshment bar. By a sliding arrangement the sloping floor of the theatre can be converted into a level surface, for balls and other social gatherings; whilst upstairs, over the main entrance, another large room, measuring 40 ft. by 20 ft., is intended for dancing or meetings. A considerable amount of detail work still remains to be done before the building is completed. The builders are Messrs. J. Blaker & Son, of Worthing; and Mr. A. T. Cooke is the architect.

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER III.—MODES OF MEASUREMENT. EXCAVATOR, CONCRETE, AND DRAINS.

Removing Top Soil.

WHERE it is necessary to remove only the top or vegetable soil generally to a depth of from 6 in. to 12 in., it is usual to measure this item *in yards superficial*, stating the depth. This is often taken when the top soil is vegetable, even when the earth below same is to be removed.

In taking the dimensions for this it is necessary to add beyond the outside dimensions of the building the projections of the footings and concrete. This will apply also to excavation, &c., described in the next clause.

Excavating to Surface, Basement, &c., per Yard Cube.—In measuring, the depth to be taken down to the underside of the bed of surface concrete, see Fig. 1.

Trench Excavation, per Yard Cube, measured the width of the concrete, to commence at the bottom of the excavation described in the last clause.

Unless shown or described to the contrary take the trench excavation and concrete of sufficient width to take one course of footings to each half brick in thickness of the walls (this is equivalent to making the bottom course twice the width of the wall) and allow 6 in. projection on each side beyond the bottom course of footings. See Fig. 1.

Where there is no concrete make the same allowance as a "working space."

The trenches for external walls will be the same length as the walls, but for internal walls they will be less by the projection of footings and concrete of every wall they intersect. See Fig 2.

In this case the deduction is 1 ft. 3 in., that being the projection for a two-brick wall.

General Notes for Excavation.—Describe excavation on the site of an old building, or wherever old foundations or anything of a foreign character is likely to be met with as "including grubbing up and removing old foundations," or "old drain and other pipes," or "roots of trees," as the case may require.

Where old buildings are to be pulled down it is usual to take the excavating from ground level, making a note in the quantities to this effect as the "housebreaker" leaves the débris up to this level, unless a special contract is made to the contrary.

If, owing to the confined situation of the work, or the excavation is inside an old building and requires "basketting" out, embody this in the description.

In taking the excavation and concrete for projections such as chimney breasts, &c., do not forget to allow beyond the width of the brickwork the spread for footings and concrete at both ends, which is generally the same as that of the wall upon which the projection occurs.

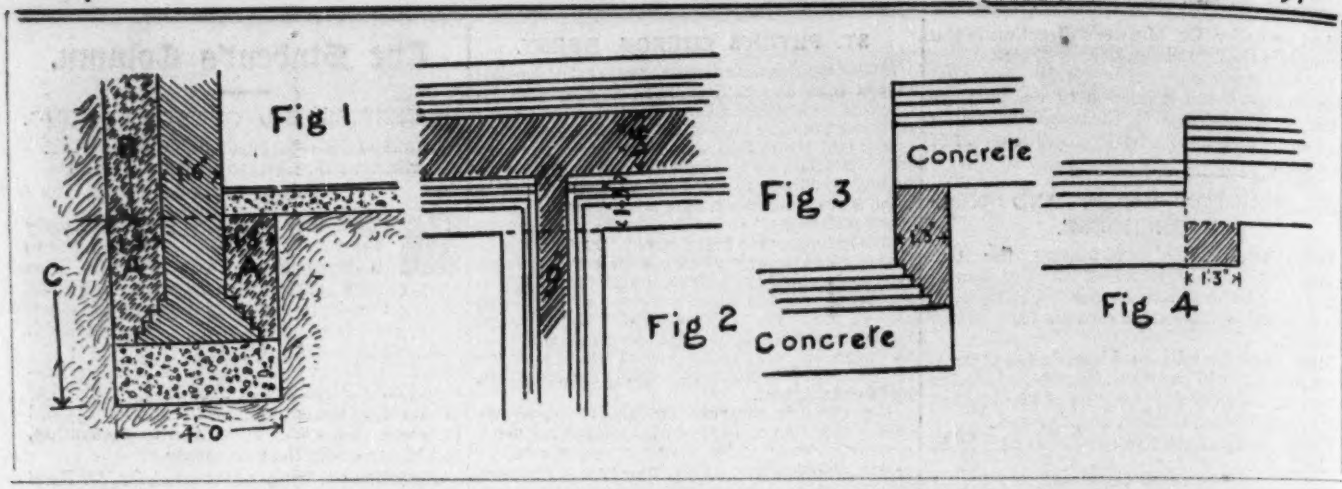
Carting away and filling in.—Take the bulk surface and basement excavation as "filling into carts and carting away," or "wheeling and depositing," as the case may be. If deposited, state within how many "runs,"* and whether the earth is to be spread and levelled upon the site or left in heaps, and whether the vegetable soil is to be kept separate from the remainder.

Deduct from the foregoing items of "carting" or "wheeling" the quantity required for filling in above the concrete around the foundations and describe as "throw out, return fill in, and ram around foundations." This dimension for the trenches will be the width of the trench less the thickness of brickwork as at A-A fig. 1, and in the case of bulk excavation the projection of the concrete foundation from the face of the wall as at B.

Extra Depths.—As the height of a throw is 6 ft., any depth below this requires staging at intervals of 6 ft., therefore take an item of extra value between these intervals below the first 6 ft. as "extra value for excavating below 6 ft. and not exceeding 12 ft. deep," and "ditto below 12 ft. and not exceeding 18 ft. deep," and so on, stating, in the event of varying levels around the building from what point this depth is measured.

Example: Trench 20 ft. long, 4 ft. wide

* A "run" is 20 yds.



commencing at a depth of 7 ft. and going down to a depth of 18 ft. deep.

20.0 4.0 11.0	Excavating to (*according to description*).
20.0 4.0 5.0	Extra value on digging below 6 ft. and not exceeding 12 ft. deep.
20.0 4.0 6.0	Ditto, below 12 ft. and not exceeding 18 ft. deep.

Filling in.—Where the surface of ground to receive surface concrete requires making up, take an item of filling in *in yards superficial* if less than 12 in. thick, *in yards cube* for any greater thickness, stating whether the filling is of earth or brick rubbish.

Strutting and Planking to basement excavation is measured *per foot run*, giving the depth. *Note*. The depth must be down to the bottom of the trench (C Fig. 1), and *not* to the level of general excavation for basement, and the other side of the trench is also to be measured in the same way. Other trenches are taken *per foot run* for both sides, giving the width and depth of trenches. It is often advisable to *number* the strutting and planking to pier holes, giving the sizes on plan and the depth. Mention particularly if the strutting and planking is to support sides next a roadway.

Strutting and planking to trenches for pipes is generally included with the item.

Trenches for Pipes, per yard run, stating for water or gas pipes, and giving the average depth; that in roads and paths kept separate, and a note made as to this item including lighting and watching, and making good surface.

Trenches for drain-pipes are better included with the drain-pipes.

Concrete in Trenches, per yard cube.—Note. That wherever there is a jump in the concrete it will be necessary to take at the end of the concrete at the higher level a superficial item of "temporary rough boarding to sides of concrete." Similar boarding will have to be taken wherever the concrete comes above the surface of the ground. Note also that additional concrete and excavating and removing will have to be taken at jumps as in the examples figured above.

The hatched portions show the additional concrete required. In the case of Fig. 4 the length is usually taken to be the projection of the footings and the concrete combined, *e.g.*, in the example shown which is for a two-brick wall with four courses of footings, would be :— 2¼ in. (projection of each course of footings) × 4 = 9 in. + 6 in. (projection of concrete) = 1 ft. 3 in.

Surface Concrete, if under 12 in. thick, *per yard superficial*, describing whether to falls. *Note* that if the surface concrete is stepped, boarding will have to be taken as described to trench concrete but *lineal*, stating the thickness of the concrete.

Filling in over vaulting, trimmer arches, &c., if averaging under 12 in. thick *per yard superficial*, if averaging over this thickness as in pockets of groining, *per yard cube.*

Concrete fireproof floors, per yard superficial, stating the thickness and keeping the different floor levels separate, either describing the floor levels or giving the heights above ground.

Take rough-boarded centering for these floors. It is well to give the heights of the stories they cover, to give the contractor some idea of the quantity of strutting necessary, although where there are main girders it is usual to strut the boarding up from the lower flanges of these girders.

If the soffits are plastered they may be left as found after the centering is struck, but if to be left plain or limewhited take "cleaning off and filling in holes with fine concrete."

Note.—Boarding as described for surface concrete will be necessary to the edges next well holes, &c.

Concrete casing to girders, &c., per foot run, giving the size of the girder and the size of the concrete casing. *Note.*—rough temporary boarding, as support, to be taken to soffits and sides.

Drain pipes, per foot run, giving the sizes and description of the pipes and of the jointing, including with the description the average depth of the digging required. Note that there are other factors in arriving at the average depth than the falls of the pipes, such as the levels of the ground, and also note that where the falls of the drain pipes vary a fresh average must be commenced.

If the pipes are bedded on or covered over with concrete, measure this at *per foot run*, stating the size of the pipe and the minimum thickness of the casing, or give the size of the bed and covering, and do not forget to allow the extra depth of digging required for the concrete bed.

If the trench for the pipes is in the road or path state this as described for gas and water pipes.

State also how the surplus soil is disposed of after filling in and ramming as described in general excavation.

Number bends, junctions, diminishing pipes, &c., as "extra over in pipes for &c.," and note that a small junction out of a larger pipe is taken as the larger size.

Give a full description of the gullies, or, better still, give the makers' names and list prices, and include with the item the excavating and setting (describing whether brickwork or concrete) and also the connexion with drain.

Number also connexions of soil, ventilation, and rain pipes with drain, giving a full description of the method of connexion to each.

Inspection Chambers and Cesspools.—If of large size measure in detail and keep the whole of the items together under a heading. The system of measuring will be as described under their respective headings in the various trades, carefully noting the channels in bottom, the sizes, and description, both as regards material and the shape in section and on plan.

For small inspection chambers it is sometimes convenient to number the item complete, with the exception of the smiths' work (such as hand and foot irons and covers) and masons' work (such as cover stones), with a complete sketch in margin, and describing the channels and shewing the arrangement and sizes of these on a sketch plan. In this case include strutting and planking, and state how the surplus earth is disposed of, as before mentioned.

GENERAL BUILDING NEWS.

Club Premises, South Shields.—On July 28 the foundation stone of a building for the South Shields Unionist Club Company was laid. The structure will be four stories in height, with a frontage of 40 ft. and a depth of 55 ft. At the street entrance to the vestibule is a high vaulted lobby, with bay windows on either side, and the whole of the front up to the first floor windows wil consist of ornamental terra-cotta work. Above this the walls will be of deep red bricks, with bay windows and dressings of buff-coloured terra-cotta. On the ground floor there will be a large entrance hall, with a broad staircase leading to the floors above. On one side of the hall there is to be a spacious reading-room, and on the other side a smoking-room 42 ft. long. To the rear will be a cloak-room and lavatories. The first floor of the building will be utilised for the billiard room. This will be an apartment 48 ft. long, L-shaped, and it is intended to place in it three tables. Above this there will be an assembly room covering the entire area of the second floor, capable of being divided into three smaller rooms by means of temporary partitions. From the buffet on the ground floor a lift is to be run up to this room. The top of the building is set apart for caretaker's quarters, consisting of kitchen, parlour, two bedrooms, pantries, &c. The whole of the basement will be utilised as cellars. The hall, cloak, and other rooms will be warmed by a system of steam coils; the whole of the principal doors will be of dark Spanish mahogany. The building throughout will be lighted by electricity. Mr. W. J. Robertson, of South Shields, is the contractor, and Mr. J. H. Morton, the architect.

Business Premises, Bristol.—A large building has recently been erected for Messrs. Durose, Sutton, & Co., auctioneers and land agents, in Baldwin-street, Bristol, and will shortly be ready for occupation The premises have a frontage of about 32 ft., are in the Flemish style, and built of moulded brickwork with freestone dressings, the arches being of rubber brick. On the right hand side a pair of massive doors give entrance to a wide corridor, which leads direct to an auction mart, a lofty apartment, about 32 ft. by 24 ft., lighted from the top by a large skylight. Off the corridor are arranged the offices for principals and clerks, with strong-room, storage, &c. At the front, lighted by a large window, is the property saleroom, which is arranged for communication with the offices. The entire suite of salerooms and offices will be lighted by electricity. The upper floors are divided into suites of offices, approached by a wide staircase from the large entrance-doors on the left. The architects are Messrs. Gingell & Bond, of Alliance Chambers, Corn-street, Bristol, and the builders are Messrs. Ford & Canning, of King-street Hall, Bristol.

Schools, Mountpottinger, Ireland.—On Saturday, July 31, the school buildings, erected under the Hugh Henry Boyd endowment in the Ravenhill-road, Mountpottinger, were opened. They have a frontage of over 60 ft., and extend rearwards for 100 ft. The plan provides for a mixed school on the ground floor, this part of the building being divided into a main compartment 50 ft. by 25 ft., a large class room, and two cloak rooms. On the second floor are the infant school and class rooms. The stairway communicating with it leads to the roof, which is flat, and made of a patent preparation overlaid with a cement finish. The walls rise into a lofty parapet surmounted by iron railing above the roof, enabling the latter to be safely used as a playground. The walls are of Belfast perforated brick, whilst the sills and keystones are of Dumfries sandstone. At the rear a spacious playground is laid out. The building contractor was Mr. William Kerr, Henryville, Mountpottinger, and the architects Messrs. Young & Mackenzie, of Donegall-square, Belfast.

Hospital Extension, Manchester.—Two of the Manchester hospitals are at the present time undergoing the process of extension. At the Royal Eye Hospital, in Oxford-street, where the accommodation for nurses and servants has for some time past proved inadequate, an additional story is being built over the central wards, which will provide excellent sleeping rooms (cubicles) for servants; while extra rooms for nurses are to be formed in the front of the main building, lighted by dormers, the whole being approached by a new staircase separate from those used by the patients. Ample bath and lavatory accommodation is provided, and large linen stores and box-rooms will further add to the comfort and convenience of the staff. Altera-

tions are also in progress at the Hospital for Consumption, at Bowdon, near Manchester. The women's wards are being enlarged to provide accommodation for some few patients who, for lack of space, have hitherto occupied rooms in the administration block, which is to be considerably remodelled, the alterations comprising the enlargement of the women's day-room, the provision of a new dispensary, and a servants' dining hall. The work at both hospitals is being carried out in accordance with plans prepared by Mr. W. Cecil Hardisty, architect, of Manchester, the contractors being Messrs. R. Neill & Sons, for the Eye Hospital, and Messrs. J. Hamilton & Son, for the Consumption Hospital.

SCHOOLS, GOLCAR, YORKS.—On July 31 new Baptist school buildings were opened in Golcar by Sir James Kitson, Bart., M.P. The new school contains thirteen classrooms, infants' schoolroom, secretary's room and library, and an assembly hall 76 ft. long by 36 ft. 6 in. wide. A reading room and a conversation room and gymnasium are also provided. The floors throughout are laid with wooden blocks on concrete. The front elevation is after the Renaissance style, built of Elland Edge pitch-faced wall stones and Crosland Hill ashlar dressings. The internal joiners' work is of pitch-pine, varnished; the roof is covered with blue Westmoreland slates. Accommodation is provided for 700 persons. The work has been executed by the following contractors, viz. :—Masons, Messrs. A. & T. Haigh, Golcar; joiner, Mr. Wm. Lockwood, Golcar; plumber, Mr. John Marsden, Huddersfield; slaters, Messrs. T. Longbottom & Sons, Huddersfield; ironwork, Messrs. G. W. Crosland & Co., Huddersfield; plastering and painting, Mr. Wilson Armitage, Golcar; wood block flooring and concreting, Mr. John Cooke, Huddersfield; heating apparatus, Mr. F. Milan, Huddersfield; electric bells, Mr. Fred Taylor, Golcar. The architect was Mr. J. Berry, Queen-street, Huddersfield.

ADDITIONS, ST. ANNE'S SCHOOLS, BISHOP AUCKLAND.—The foundation stone of new buildings which will form part of St. Anne's Infants' and Girls' schools, Bishop Auckland, was laid on Tuesday, July 27. The extension will consist of two large rooms, divided by a sliding screen. It will be uniform in character with the present schools, and will seat about 400 children. The chief contractor is Mr. G. H. Bell, in co-operation with whom are Messrs. Hudson, joiner; Mascall, slater; Kirby, plasterer; and E. Thompson, plumber. Messrs. Moscrop & Clarke, of Darlington, are the architects.

OPERA HOUSE, CROUCH END, LONDON.—On Tuesday, July 27, the new "Queen's Opera House," at Crouch End, was opened. The building is approached from Topsfield-parade by an iron and glass verandah, the entrance and vestibule being 26 ft. wide. The latter is divided into lobbies and crush-rooms. On the right are the customary ticket and managerial offices and a corridor containing retiring and cloak rooms leading to the stalls. From the end of the corridor the boxes are approached by a fireproof staircase. The exits are so arranged that all the house can be emptied within three minutes. The balcony of the theatre is approached at the main entrance by a marble staircase. In the scheme of decoration cream and gold prevails. The orchestra is sunk below the floor level and has accommodation for twenty musicians. The proscenium opening is 26 ft. square, and the depth of the stage 35 ft. The height from the floor to the "grid" of the stage is 50 ft., and the actual width of the stage 54 ft. A fireproof curtain is provided. There is a lounge and saloon for occupants of the ground floor, 50 ft. by 25 ft., and a smaller saloon in connection with the balcony, in addition to a smoking and several retiring-rooms. Twelve dressing-rooms are in close proximity to the stage. The decorations, upholstering, and fibrous plaster work in the theatre has been carried out by Messrs. A. K. Dean, Limited, of Birmingham. Mr. Frank Matcham was the architect.

NEW BOARD SCHOOL, LITTLE ILFORD.—The memorial stone of the new Board School, now being erected in the Essex-road, Little Ilford, was laid on Thursday, July 29, by the chairman of the Little Ilford School Board. These schools are designed to accommodate 1,582 children, *i.e.*, ground floor, Infants, 582; first floor, Girls, 500; second floor, Boys, 500. The builders are Messrs. Wm. Gregar & Son, Stratford, the contract price being 14,168*l.* 7*s.* 4*d.* The architect is Mr. S. Jackson, of London and Manor Park, Essex.

PAVILION THEATRE, MORECAMBE.—An addition, known as the Victoria Pavilion, has recently been made to the buildings in the Winter Gardens, Morecambe. The façade is built of Ruabon terra-cotta, and is constructed with two large balconies from which to view the scenery of Morecambe Bay. The entrance is in faience work; the promenade, which is 15 ft. wide, runs entirely round the auditorium. The ground floor is sloped from the back to the stage. From the entrance two flights of marble stairs lead up to the first circle, where there is a smoking promenade and four tiers of seats. A second gallery, to hold 1,000 people, is above this level. The span of the roof is 118 ft. from wall to wall. This ceiling is covered with fibrous plastic work, by Dean, of Birmingham. The iron work is by the Widnes Foundry Company. The stage is 72 ft. wide, 35 ft. deep, and 60 ft. to the grid floor. The entire building is lighted by electric light, the wiring and lamps being supplied by the Keighley Electric Lighting Company. The builders are Messrs. S. Whitehead & Sons; and the architects Messrs. Mangnall & Littlewoods, of Manchester.

THEATRE, SWANSEA.—On July 26 the memorial stone of a new theatre at Swansea was laid. The building is in the Renaissance style; the materials used for the walls are white stone and red brick, faced with rough cast plaster. Dark red bricks are used at all angles, and terra cotta has been freely employed for the ornamental portions. The roofs and towers are covered with Swansea terne plates instead of the ordinary slates. The auditorium is in the form of a square, each side 65 ft. long, and consists of three floors, comprising ground floor stalls and pit, the dress circle, and the gallery. It is estimated that it will accommodate 2,500 people. The exits are such as to enable the whole of a crowded house to leave in two minutes. There are five of these leading directly on to the street, and for each part of the building there is an exit on each side of the auditorium. All the staircases have been constructed of fireproof materials, and "panic bolts" enable all the doors to be opened by the slightest push from the inside. The principal entrance leading to the stalls and dress circle is in Singleton-street, and will have a marble staircase and decorated walls. The floors and entrance lobby with the landings and foyer will be paved with mosaic tiles. The ceiling is treated in the florid French Renaissance style in finely-modelled plastic work, the whole being relieved by massive gilding. Each section of the house is provided with lavatories and convenient refreshment-rooms. The height of the stage ceiling from the cellar floor is 80 ft. The gas and electric light arrangements on the stage are controlled from a position above the artistes and stage hands. Electric lighting arrangements are under the supervision of Mr. E. Wingfield Bowles. The cost of the whole building, fixtures, &c., when completed, is estimated to be close on 20,000*l.* The contractor for the building is Mr. D. Jenkins, of Swansea. The plastic decorations, the furniture upholstering, and the seating of the auditorium have been carried out by Messrs. A. R. Dean, Limited, of Birmingham. The upholstering, carpeting, and furnishing for the lounges, passages, lobbies, and refreshment saloons have been mainly executed by Messrs. Ben Evans & Company, of Swansea. Mr. Wm. Hope is the architect.

CHURCH, CASTLETOWNROCHE, CO. CORK.—The rebuilding of this church is now approaching completion. The nave is separated from the aisles by lofty arcades, the arches 27 ft. to apices, springing from the piers, which, were found intact and sound, after the late fire; the arches have mouldings and labels, stopping on the abacus moulding of the piers. The piers supporting the arcades are square on plan, and have sunk panels on the four sides with cusped heads, stopping directly under the abacus. The sanctuary is square on plan; it is lighted by three lofty lancet windows, 20 ft. high by 2 ft. 6 in. wide, splayed on the inside with moulded string underneath, filled with stained glass. Over these windows, at a higher level, is a narrow single light window, similarly glazed. To the right and left of the sanctuary are the side altars lighted by single lancet windows, well splayed on the inside. The aisle windows have plain pointed heads, of slightly different treatment, chamfered on the outside and well splayed on the inside; they are glazed with lead lights of a very neat pattern. The western gable has been completely rebuilt from the ground, with two large buttresses added. There are two very lofty lancet windows in this gable, the whole being surmounted by belfry and cross. The western end of the aisle wall on either side of this gable has a plain lancet window. At the western end is an organ gallery with stairs. The high altar is composed of statuary marble, except the cluster of shafts supporting the canopy, which is of red marble. Mr. Daniel Creedon, of Fermoy, is the builder; and the stained-glass windows and lead lights were executed by Messrs. Watson & Co., of Youghal. The architect is Mr. Samuel F. Hynes, of South Mall, Cork.

EXTENSION OF BLAIRS COLLEGE, ABERDEEN.—The first section of the extension of Blairs College is now being finished. The new portion, when completed, will consist of a front block, facing towards the river, and east and west wings—forming three sides of a square, with the hollow facing southward. The section all but complete is the west wing—a building three storeys high and about 150 ft. long. It is built of Aberdeen grey granite, pointed. The building is traversed along its entire length by a central corridor twelve feet wide. The ground floor is appropriated mainly to class-room purposes. A recreation-room for the students is provided at the south end, where a stage is to be erected for private theatricals, while the corresponding room at the north end is to be used as a study, the intervening space being utilised for class-rooms. On the first-floor will be the apartments for the rector and professors. The new block is estimated to cost 8,000*l.* Mr. Robert G. Wilson is the architect.

SCHOOLS, UPTON, TORQUAY. — On Saturday, July 24, the recently erected schools at Lower Upton were opened. The accommodation provided is for 300 children. There are three class-rooms, the centre one being 86 ft. long, 24 ft. wide, and 24 ft. high. This room can be divided by a movable glass screen. The rooms on either side are 28 ft. long, 18 ft. wide, and 20 ft. high. The two cloak-rooms are each 21 ft. long by 18 ft. wide, and over the chief room are mistresses' and assistant teachers' rooms and offices. The general design of the building is domestic Gothic. The plinth and corner stones are of limestone from the Barton Quarries, the general building being of local brick, with Bath stone and Bracknell brick facings, and a little hanging tile in front. The roof is of Welsh slate, and there is a small bell turret. The builders were Messrs. S. & A. Trethewy, the contract price being 2,185*l.* Mr. E. Richards was the architect.

SCHOOLS, WESTON-SUPER-MARE. — The Board schools opened at Weston-super-Mare on July 30 are of local stone with Bath stone dressings, and covered with plain Bridgwater tiles. There are separate departments for girls, boys, and infants, with separate playgrounds. In each playground a covered play-shed is provided. The sanitary offices are fitted with Adams' improved patent syphonic multiple apparatus, with automatic flushing cisterns. Each department of the schools has two entrances for the scholars and one for the teachers. There is a central hall for each school, measuring 40 ft. by 34 ft., and 30 ft. high; and surrounding this hall are class-rooms with accommodation for sixty scholars in each. A room is set apart as a centre for cookery classes. This is approached by a separate entrance from the girls' playground. There are also a chemistry room and drawing class room, each 26 ft. by 24 ft.; separate sitting-rooms for the head master and mistress, also for the assistants of each department. Store-rooms are provided for the storage of books, &c. The walls in each room are lined with glazed tile dados, and the floor is formed with 1½ in. pitch pine wood blocks. There are also laundry and drying rooms and a carpenter's shop. The heating of the building is by low pressure hot water, one pipe relief system. The architects are Messrs. Price and Wooler, of Weston-super-Mare.

MECHANICS' INSTITUTE READING-ROOM, NEW SWINDON.—The work of decorating this has now been completed. The style adopted is a Duresco decoration for the large ceiling, with a shaded enrichment and pale blue background of plaster work. The principals below the ceiling are relieved with gold. The whole is arranged to show the plaster work to the best advantage. The walls are panelled, being relieved with ornamental bands. The work was carried out by Messrs. A. & R. Dean, Corporation-street, Birmingham.

BLACKPOOL TOWER FIRE.—Messrs. Maxwell and Tuke, the architects of the Blackpool Tower, reporting on the condition of the buildings after the recent outbreak of fire, state that no damage had been done to the main structure or entertainment portion of the buildings, the fire having been confined to the three landings above the 380 ft. platform, where certain woodwork had been destroyed, and where the heat fused the cables, causing the two balance weights to fall.

CRICKET PAVILION, DENSTONE COLLEGE, STAFFS.—The new pavilion, erected from designs by Mr. Bertram Heywood, is now finished. It has a wide roof, with green slates, green woodwork, red brick and stone walls. In front are raised terraces, to be provided with seats; a verandah some 5 ft. wide runs on the top of these, broken in the centre by a projecting bay, which forms the main entrance. The luncheon room is large and its roof shows the rafters and ceiling woodwork, a feature being made of the arched timber trusses which support it. The brick walls are at present left bare. Opening out of this room to the right and left are the dressing room for visiting teams, and lavatory accommodation. A room for nets and other cricketing apparatus is reached externally at the eastern end, and there is also a servants' entrance to the luncheon room at the back of the building. The cost of the work is 600*l.* The builders are Messrs. Chamberlain, of Burton.

SANITARY AND ENGINEERING NEWS.

SWING BRIDGE, LOWESTOFT.—The new swing bridge at Lowestoft, which separates the north and south portions of the town, opened a few weeks ago, was manipulated for the first time on Saturday, July 31, by means of hydraulic machinery, in lieu of steam power and ropes. The hydraulic apparatus is set in motion by means of a gas engine, which, together with the other machinery, has been fixed under the superintendence of Mr. Scott, the G.E.R. local engineer. The actual time occupied in swinging over the river is about 55 sec.

ARTESIAN WELL AT ABERDEEN.—After carrying on boring operations for twelve months at the premises of the Bonaccord Distillery Company, Hardgate, Aberdeen, the Vivian Boring Company, Whitehaven, have come upon water at a depth of 450 ft. from the surface. For a distance of 300 ft. the boring has been through granite, and though the rock was somewhat broken, the operations were necessarily very slow. The granite met with was fine-grained, and resembled that got at Rubislaw quarry, about 1½ miles off, but was of a very inferior kind as regards colour. In penetrating the granite there was used a ring 9 in. in diameter by 6 in. deep, set round with twelve diamonds, the

ring being screwed into a tube about 12 ft. long. We understand this is the stiffest job the employees of the company have yet had. A pulsometer is now being fitted in, which will throw from 8,000 to 10,000 gallons of water per hour into a tank on the top of the malt loft at the distillery.

ENGINEERING TRADES. — According to Messrs. Matheson & Grant's half-yearly Engineering Trades Report, during the last twelve months every branch of the Engineering Trades has been busily engaged, and this activity still, with a few exceptions, continues, but signs are not wanting that the pressure on manufacturers is relaxing. The strike of the operative Engineers, now in progress, for an eight-hours day will be the more unfortunate if it continues and extends on an ebbing tide. In iron and steel manufacture the number of furnaces in blast has been increased during the past year, and with this enlarged production pig iron has not maintained its price, though current rates—which are largely due to speculative dealings—must not be taken as an absolute measure of trade. Pig iron from Alabama still arrives and is found to be of good quality, but this import depends greatly on American makers having superfluous stocks to dispose of, and on low ballast freight rates being available. Steel makers have all been busy, and most of them continue so. American competition is still threatened; billets are being sent to this country on consignment; and the present low price of steel rails in the United States brings the possibility of delivery in Europe very near. A purchase of American rails for one of the Indian railways is announced, and it is, of course, in these distant markets, rather than in Great Britain, that this new competition is likely to develope. It yet remains to be seen how far American makers will be able or willing to conform to such conditions of test and quality as are demanded by British Engineers. Mechanical Engineers, Iron-founders, and Machine-tool makers include so great a variety of trades, that no general statement can apply, but, broadly, all are busy at fairly remunerative prices. There has been a lull in the great demand for mining machinery, partly owing to the uncertainties in South Africa. Electric haulage in mines and on tramways, and electrical transmission of power for machines and cranes in factories, are becoming more widely adopted and have the greater effect on the industries concerned, because Great Britain has much leeway to make up as compared with other countries. Gas engines are taking a more important position, partly due to the facility with which those of larger power than formerly can be constructed, and partly also to improvements in the manufacture of cheap gaseous fuel. The extension of cycle-making factories seems to have reached its culminating point, both in Europe and America, and the increased output has already had the effect of reducing prices. Machine tool makers have met the increased demands upon them by new designs, giving greater working power and less friction. The application of electric motors to machine tools, and other improvements in form and method, have retained in this country a branch of engineering which is subject to serious and growing competition from American manufacturers. In the Portland cement trade there has been a marked revival from the depression of the last three years. Besides the great activity in the building trades at home, the demand for export has been very brisk, China, Japan, South Africa, and other countries taking increased quantities. The works in the London district are busy, therefore, at considerably enhanced prices. In many harbour and other public works that are going on throughout the world, the cost of cement forms an important item in the total expenditure, and any excessive rise in price would discourage progress with works already projected. Public works, at home and in the colonies, have lately afforded increased employment for professional engineers and contractors. Much railway work is going on. The Blackwall Tunnel has been completed, but affords such meagre accommodation for traffic as to still leave the necessity for a bridge of appropriate design. In London the deep-level underground railways are being pushed rapidly forward, and the terminal works of the Grand Central Railway from Sheffield to London are advancing so as to be ready when the line is open two years hence. In India the authorised railways are progressing, but at a rate which will probably be restricted by the recent calamities of plague and famine. In South Africa, Western Australia and British Columbia, mining enterprise is causing and justifying considerable outlay of public funds for harbour and railway accommodation.

FOREIGN.

FRANCE.—On the Daru staircase some long requisite works are being carried out. The temporary wooden stairs have given place to large steps of white marble, ornamented with a decorative balustrade. In the Salle des Etats M. Redon, the new architect to the Louvre, is arranging a large central gallery reserved for Rubens, and fourteen small galleries which will be filled with works of the Dutch School.——An exhibition has been organised at the Natural History Museum of the collections made by M. Chaffanyon in Central Asia and Siberia.——The works at the Gare de Lyons are being actively carried on, but it is not expected that they will be completed until 1904. The existing façade will be replaced by a central building 86 mètres long by 15 mètres deep, in which the "Salle des par perdus" will be formed. The principal entry of the new station will be parallel to the Boulevard Diderot and at right angles with Rue St. Antoine.——In October the new Mairie of Levallois-Perret, built after the plans of M. La Jamin, is to be opened. The building, which is to be a very sumptuous one; is to cost about two million francs.——By order of M. Roujon the Directeur des Beaux-Arts, the steps to the long-abandoned terraces in the park at St. Cloud are being put into repair.——The Municipality of Bordeaux has opened a competition for the erection of a monumental fountain in that city, on the Place Amadée-Larrieu.——The annual exhibition of the "Arts Decoratifs" will be held temporarily in a gallery in Rue des Bons Enfants, until the Pavillon Marsan at the Tuileries is prepared for them.

MISCELLANEOUS.

CHANGE OF ADDRESS.—The "Universal" Sewage Purification Company have removed to "Universal" Chambers, Albert-street, Derby.

SANITARY INSPECTORS' ASSOCIATION.—In connexion with the "Hygienic Congress" at the Brussels Exhibition, the Sanitary Association have arranged to visit Belgium early in September. Their programme includes visits to and inspection of the Sanitary Works at Antwerp, Malines, Ghent, Bruges, Ostend, and Brussels. Receptions by the Burgomaster, Aldermen, and Councillors will be given to them at most of those towns. M. Buls, the Burgomaster at Brussels, has invited them to a reception at the Hotel de Ville on the evening of September 6, and has also placed the Militia Hall at their disposal for their meetings whilst in Brussels. At Ostend a reception will be given at the Hotel de Ville on the morning of September 10.

STATISTICS AS TO ELECTRIC RAILWAYS.—For the last few years the earnings of the City and South London Electric Railway have been slowly but surely increasing, and the announcement just made that the directors recommend that the full dividend of 5 per cent. should be paid on the preference shares, together with a dividend at the rate of 2 per cent. per annum upon the consolidated ordinary stock must be considered satisfactory, and as evidence that this system of travelling can be made remunerative. Electric railways, however, have not made such rapid progress as was expected, although they are now gradually gaining ground in various European countries, and, more particularly, (as observed in a former issue) in the United States. It is stated in the *Journal of the Franklin Institute* for July that during the year 1895 the total number of electric railways or tramways in Europe rose from 70 to 111, and the length of lines from 435 miles to 560 miles. The mileage of electric railways in the principal European countries is given as follows:—Germany, 252 miles; France, 82 miles; Great Britain and Ireland, 66½ miles; Austria-Hungary, 44 miles; Switzerland, 29 miles; and Italy, 24¾ miles, Servia, Russia, Belgium, and Spain have but from 6¼ to 18½ miles, while the remaining countries have less than 5 miles each. Of these 111 lines 91 are operated on the overhead surface system, 12 on the underground system, and 8 by means of accumulators. It is estimated that the new lines projected for the present year will exceed in number and mileage those constructed during any previous year.

MEETINGS.

SATURDAY, AUGUST 7.

Northern Architectural Association. — Excursion; meet in Northumberland-road. 3 p.m.

MONDAY, AUGUST 9.

Architectural Association.—Annual excursion commences; meeting at Lancaster.

SATURDAY, AUGUST 14.

Institution of Junior Engineers.—Summer meeting, at Dublin, commences.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

17,806.—HORTICULTURAL STRUCTURES: *J. F. Pickering.*—As a sequel to Patent No. 3,993 (February 24, 1894), inventor claims forming the bars so that they slope to the south at a suitable angle, whereby saving of timber results; and also, in combination with a travelling horticultural structure, an independent travelling boiler, &c.

18,486.—FLUSHING CISTERNS: *R. B. Evered.*—Invention consists in improvements intended primarily for use with flushing cisterns of Patents No. 22,348 (November 19, 1894) and No. 9,330 (May 11, 1895), and embraces a flushing cistern in which the after-flush syphon is provided with means for keeping its inlet end closed so long as the water in the main compartment of cistern is at the normal level, and a flushing cistern provided with means for controlling the after-flush.

3,102.—DOOR RELEASING AND OPENING APPLIANCES: *F. C. Kunkel.*—Invention consists in an automatic door-opening apparatus, characterised by a latch lock which is locked in the closed position by means of a movable retaining nose and by a locking-plate adapted to slide behind the locking-plate proper and to be operated by the latch-bolt.

10,697.—CURTAIN, &c., RODS: *A. C. Herfort.*—Invention relates to rods—fluted, grooved, or of any desired cross section—encased in copper or other metal, and chiefly destined to be used as curtain or portière rods.

10,773.—SAW SETS: *J. Bowles and Another.*—Inventor claims in a saw set for setting teeth of self-planing saws the combination of a grooved female die and a corresponding grooved male die, with sundry modifications.

12,242.—FIREPROOF CONSTRUCTION: *A. R. Fordyce.*—In a metallic skeleton, which forms the foundation of floors, ceilings, partitions, &c., and supports the filling in of plaster, &c., inventor claims the combination of supports, hoops mounted thereon, and auxiliary supports described and illustrated.

12,283.—PARQUETRY FLOORS, &c.: *J. W. Heaton and Others.*—In a thin or surfacing parquetry floor inventors claim the combination of flooring strips, having their edges grooved and thin metal strips having tongues cut from their edges and bent down at right angles with the plane of said strips and thence outwardly parallel.

15,823.—WATER-CLOSETS: *M. Albrecht and another.*—Invention has for object to provide a seat for water-closets wherein the part of the seat which the person sits on forms a roller covered with non-porous material, in such a manner that each time the closet has been used the said roller will be turned half a revolution and its lower surface will be scraped, and cleansed with water, which process is for preventing contagion.

16,888.—TOOLS FOR STONE, &c., DRESSING: *J. Dobbie.* Invention consists of a handle for holding reversible cutters, having jaws provided with one or more transverse grooves to receive corresponding ribs formed upon cutters.

16,892.—HARDENING STONE: *T. K. Jones.*—Portland and similar stones are placed in a vacuum so as to exhaust air contained in stone, when a solution of sulphate of zinc is introduced until stone is saturated.

18,295.—FIREPROOF CEILINGS AND FLOORS: *J. F. Kleine.*—Inventor produces ceilings, &c., with iron girders, characterised by the employment of a slab or flat arch consisting of artificial or natural stone, firmly connected by a suitable cement, and carrying iron bars imbedded in the joints between the several stone layers and set on edge. Various modifications are described and claimed.

19,033.—INLET VENTILATOR: *J. Duke.*—In a "Tobin" tube, or inlet ventilator, inventor claims application of a valve or flap turning on one edge, to wit, the lower horizontal, and closing the air passage, or when opened allowing of an upward discharge of air through the ventilator.

19,654.—WASTE WATER PIPES: *T. Thomasson and Another.*—Invention consists in a means for preventing entrance of foul air, &c., into rooms, &c., and consists in a thimble with water compartments in conjunction with a cone and trap.

19,806.—WINDOWS: *S. Bastow.*—Invention has for object to construct movable windows and sashes, which can be opened and secured in any position. This is effected by a combination of grooves or slots, bolts, studs, and thumb-screws.

25,706.—ROOFS, CEILINGS, AND BUILDING BLOCKS: *F. Muller.*—Invention consists in a process of construction of surfaces for building purposes, characterised by an arrangement of stone blocks, wherein blocks are united by suitable cement, such as mortar, forming steps or off-sets in relation to each other, so that each extends nearly halfway up the depth of next block. Inventors also employ stiffening metal bars (or angle-irons) to increase structural resistance.

NEW APPLICATIONS FOR LETTERS PATENT.

JULY 12.—16,414, J. Fesemeyer, Window Sash Fasteners.—16,415, D. Roberts, Window Sash Fastener.—16,416, H. Beien, Door Latches.—16,431, G. Brookes, Window Sash Fasteners.—16,452, A. Merritt, Window Fastener.—16,453, A. Thomas, Sash Fasteners.—16,457, T. Thomas, Window Fastenings.—16,461, H. Edmond, Window Frame and Sash for Cleaning, Ventilating, &c.—16,464, J. Petter, Grates or Stoves.—16,498, A. Latham, Window Sash Fastener.

JULY 13.—16,523, J. Akam, Saws.—16,536, J. Ewen, Combining Prism Pavement and Prism Plate placed midway between the sections thereof for lighting basements.—16,548, J. Ewen, Combined Prism Pavement and Side Prism Plate for Illuminating Basements.—16,552, J. Ewen, Lighting Basements by Prism Windows, and Prism Ceiling Plates.—16,565, J. Ewen, Skylights with Primary and Secondary Prism.—16,596, C. Cordes, Attaching Sash-lines to Window Frames.—16,598, C. Holmberg, Self-heating Soldering Irons.—16,646, R. Bamber, Disinfecting Drains or other places provided with a Flushing Apparatus.

JULY 14.—16,674, M. Gentry and H. Grunwell, Machinery for Pressing Bricks.—16,730, H. Munslow and J. Bates, Sash Fasteners.

JULY 15.—16,742, F. Lynde, Baths, Lavatory Basins, Sinks, &c.—16,757, G. Strumpfler, Rendering Folding or French Windows Rainproof.—16,780, F. Beer, jun., Edging Wood, Cement (Vulcanite), and Paste-board Roofing with Gravel Layer.—16,814, T. Pearson, Sash Fastener.—16,817, G. Krause, Blocking and Stopping Device for Use in Connection with Doors and Windows.

JULY 16.—16,839, W. Fieldhouse, Fireplaces.—16,863, H. Wallis, Window Sash Fastener.—16,879, J. Crawford and J. Holmes, Outbuildings.

JULY 17.—16,900, A. Thomas, Gripping Scaffolding Ladders, &c.—16,915, J. Zade, Scaffolds.—16,939, C. Green, Blocks for Building Arches, Counter Hearths, Flooring, &c.—16,947, J. Szék, Floor Tiles, &c.—16,959, V. Fischbein, Screws and Screwdrivers.—16,964, W. Thomson, Glass Tile.—16,966, A. Loewi, Flooring.

JULY 19.—17,007, J. Craven, Brick-making Machines.—17,051, F. and H. Hamill, Oil Paints.

JULY 20.—17,058, J. Shanks, Discharge Apparatus for Water Cisterns.—17,062, R. Gardner, Water Waste Preventor.—17,130, B. Carney, Siphon Tank Flush Water-closets.—17,148, A. Kidd, Window Sash Fasteners.—17,150, J. Jones, Window Sash Fasteners.

JULY 21.—17,197, J., W., and G. Barstow, Ladders.—17,206, C. Hickford and H. Bagnall, Locks.

JULY 22.—17,257, P. Jones, Syphon Flushing Cisterns for Water-closets, &c.—17,264, G. Heath, French Windows and Doors.—17,270, G. Billington, Paints, Varnish, and Similar Cans.—17,308, W. Mainzer, Hanging and Fixing Metal Window Casements.—17,334, J. Dári, Wood Paving.

JULY 23.—17,355, R. McVittie, Attaching and Securing Sash-Lines or Cords to Window-Sashes, Shutters, &c.—17,360, J. Dawson, Painters' Scrapers, &c.—17,383, G. Ash, Shop-Window Fittings.—17,385, G. Haywood, Ventilators.—17,419, N. Ashton and J. Crompton, Hydraulic Cement.—17,422, C. & O. Law, Horizontal Sawing Frames.

JULY 24.—17,431, A. Watson, Ceiling Roses for Electric Lamps.—17,442, H. Ringel, Handles for Files and Similar Tools.

PROVISIONAL SPECIFICATIONS ACCEPTED.

13,557, A. Jordan, Chimney Top or Ventilator.—14,054, P. Liebig, Flushing Apparatus for Water Closets.—14,305, G. Warren, Mode of Drying Brick or other material in Continuous or other Kilns.—14,496, H. Pertwee, and R. Knowles, Sash Fasteners.—14,699, R Evered, Automatic Flushing Apparatus.—14,995, P. Leonard, and W. Hall, Syphoning or Flushing Apparatus.—15,021, P. Webber, Chimney-pot.—15,362, C. Charter, Alarms or Signals for use upon House Doors, &c.—15,375, A. Wise, Carriage for Lifting and Transmitting Timber.—15,582, A. Martyn and F. Goodsall, Composite Sheet Material adapted for Roofing Lights and other purposes.—15,678, R. Matthews, White Lead.—15,905, J. Hanna & T. Shillington, Stables and their fittings.—8,728, E. Stiff, Taps and their Connections.—14,862, G. Osborne, Fastener for Windows.—14,860, S. Baker and W. Hadley, Window Sash Fasteners.—15,458, J. Thomas, Window Sash Fasteners.—15,460, A. Smith, Fasteners for Sashes.—15,462, J. Veitch, Sash Fasteners.—15,559, M. Mawson, Securing Window Sashes.—15,628, S. Wathan, Window Sash Fasteners.—15,629, G. Cockings, Window Sash Fasteners.—15,633, J. Martingale, Window Sash Fasteners.—15,634, S. Seccombe, Window Sash Fasteners.—15,843, R. Miles, senior, Water-closets, &c.—15,874, J. & W. Rawlings, Automatic Flushing Apparatus.—16,005, D. Booth, Traps for Sanitary or Drain Pipes.—16,263, E. Hugues, Cement Building Materials.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

19,419, A. McLean, Artificial Stone.—21,172, A. Kugler, Paint and other Brushes.—21,336, J. McNab, Windows and their frames.—757, W. Hewitt, Tiles and Apparatus therefor.—6,654, J. Johnson, Water Closets.—11,059, G. Gardner, Door Hangers, and supporting tracks therefor.—16,296, W. Stonehewer, Composition Sash Weight.—25,212, J. Greenwood, Chimney Pots, Ventilators, &c.—27,246, G. Low, Testing of Drains and Apparatus Therefor—10,789, C. Mobers and W. Wirtz, Ceilings.—14,803, B. Williams, Fasteners for Windows.—15,181, G. Freeman and W. Shoosmith, Covers for Inspection Apertures in Interceptors or other Traps, Drains, &c.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

July 14.—By GRAHAM, HITCHCOX, & Co. (at Newport).

1 to 8, 12 to 15, 22, 23, 30, 31, 71, 72 and 73, King-st., u.t. 33 yrs., g.r. 38*l.* 14*s.*	£775
King-st., "The Greyhound" Inn, and three cottages adjoining, u.t. 33 yrs., g.r. 32*l.*	610
66, 67, 68, 83, 92 and 97, King-st., u.t. 33 yrs., g.r. 14*l.* 18*s.*	357
26, 27 and 41 to 45, Prince-st., u.t. 33 yrs., g.r. 9*l.* 6*s.*	162
4 to 7, 11, 14 to 16, 30 and 48, Queen-st., u.t. 30 yrs., g.r. 28*l.* 2*s.*	560
64, 65, 65a and 65b, King-st.: 7 & 8, Garn-rd.; also two cottages, u.t. 30 yrs., g.r. 13*l.*	280
King-st., &c., four building plots, f.	255

By W. DEW & SON (at Llangefni).

Penmynydd, Anglesea.—"Dyffryn" (parts of), 832 a. 2 r. 21 p., f.	25,800
"Rhydydelyn Fawr" (parts of), 95 a. 2 r. 38 p., f.	3,300
Pentraeth, Anglesea.—A house, smithy, and 7 a. 3 r. 8 p., f.	641
"Gwaith-dy Farm," 60 a. 3 r. 2 p., f.	1,780
Two houses and 36 a. 1 r. 21 p., f.	1,100
Enclosures of land, 3 a. 2 r. 0 p., f.	251
House, shop, and 0 a. 0 r. 21 p., f.	150
Rhodogeidio, &c., Anglesea.—A house and enclosures, 49 a. 1 r. 16 p., f.	1,500
Two houses and enclosures, 222 a. 1 r. 38 p., f.	4,785
Houses at Penycraig and 0 a. 3 r. 24 p., f.	550
Llantrisant, Anglesea.—Houses and enclosures, 180 a. 1 r. 6 p., f.	4,650
"Parc Newydd Farm," 77 a. 0 r. 9 p., f.	1,785
Two houses and enclosures, 37 a. 0 r. 39 p., f.	1,205
"Nantanog Farm," 428 a. 0 r. 1 p., f.	8,650
"Glan-y-Gors Farm," 169 a. 3 r. 4 p., f.	4,200
"Chwaen Hen Farm," 103a. 1 r. 27 p., f.	2,550
"Pen-y-Bryn Farm," 92 a. 1 r. 35 p., f.	2,100

By THURGOOD & MARTIN (at Kingston).

Kingston, Surrey.—Wood-st., three plots of building land, f.	675
Horse Fair, three plots of building land, f.	455
Thomas-st., four plots of building land, f.	1,035

By STAFFORD & ROGERS (at Bungay).

Bungay, Suffolk.—"Duke Bridge Farm," 77 a. 3 r. 18 p., f.	1,130
Freehold house and cottage, r. 10*l.*	165
Spexhall, &c., Suffolk.—"White House Farm," 251 a. 0 r. 5 p., f.	1,750

By MORRIS, MARSHALL, & POOLE (at Shrewsbury).

Worthen, Salop.—"Worthen Hall Farm," 211 a. 0 r. 6 p., f.	6,000
"The Bank Farm," 178 a. 1 r. 27 p., f.	5,000
"The Bird Farm," 16 a. 0 r. 23 p., f.	720
"Worthen Corn and Saw Mills," 23 a. 1 r. 35 p., f.	1,250
"Rose Cottage," "Woodbine Cottage," and 24 a. 2 r. 17 p., f.	1,275
Freehold house and garden plot, 3 a. 0 r. 25 p.	426
"The Kynaston Arms" Inn and 3 a. 0 r. 11 p., f.	950
Fourteen cottages, two tenements, and 8 a. 0 r. 12 p., f.	2,070
Various enclosures, 18 a. 1 r. 34 p., f.	1,065
Brockton, Salop.—House, blacksmith's shop, and 4 a. 3 r. 32 p., f.	430
Two cottages and enclosures, 4 a. 1 r. 37 p., f.	330
Rowley, Salop.—"Titley Farm," 44 a. 2 r. 39 p., f.	800
"Passant's Rowley" Farm, 14 a. 2 r. 29 p., f.	450
Two cottages and 1 a. 2 r. 24 p., f.	170
"Tantre Bank" enclosures, 22a. 2 r. 26 p., f.	230
"Upper Cottage," "Church House," "Spring" tenements, and 16 a. 3 r. 18 p., f.	590
"Little Rowley Farm," 25 a. 2 r. 7 p., f.	675

By CHURTON, ELPHICK, & Co. (at Chester).

Puddington, Cheshire.—Three freehold farms, area 103 a 2 r. 8 p.	4,925
"New House Farm," 188 a. 2 r. 9 p., f.	6,350
"Chapel House Farm," 135a. 2 r. 6 p., f.	5,000
Eleven cottages, school house, plantation, and 3 a. 2 r. 8 p., f.	1,425
Various enclosures, 71 a. 3 r. 16 p., f	3,630

July 16.—By NOCK & JOSELAND (at Kidderminster).

Rock, Worcester.—"Moor Green Farm," 87 a. 2 r. 23 p., f.	£1,800
Kidderminster, Worcester.—Worcester-st., "The Turk's Head" p.-h. and shop and four cottages adjoining, f.	1,910

By W. G. STANSFIELD & Co. (at Eccleshill).

Eccleshill, Yorks.—"Dog Kennels Farm," 28 a. 1 r. 12 p. f.	3,965
Three blocks of land, 21 a 0 r. 11 p., f.	3,252
A plot of land, area 6,265 yds., f.	313

By JAMES MAUDSLEY (at Longpreston).

Longpreston, &c., Yorks.—"Town Head Farms and Prospect House" Estate, 271 a. 2 r. 5 p., f. (in lots)	11,010

By ELWORTHY & SON (at Manea).

Manea, Cambs.—"Fodder Fen Farm" and another farm, 292 a. 2 r. 7 p., f.	7,000
Three enclosures, 31 a. 0 r. 7 p., f.	980

July 17.—By FENN & Co. (at Colchester).

Little Oakley, Essex.—An enclosure, with three tenements and a cottage, 5 a. 2 r. 26 p., c.	120

By H. J. WAY (at Newport).

Godshill, Isle of Wight.—"Bobberstone Farm," 55 a. 2 r. 25 p., f.	1,700

By Messrs. SPELMAN (at Norwich).

Thurlton, &c., Norfolk.—A farm, comprising 85 a. 2 r. 30 p., f. and c.	1,000
Occold, Suffolk.—"The Church Farm," 130 a. 0 r. 20 p., f.	1,665
Mattishall, Norfolk.—Nine houses and three shops, f. and c.	645
Mileham, Norfolk.—"Colley Hill Farm," 133 a. 0 r. 23 p., f. and c.	1,420

By MORRIS, SONS, & PEARD (at Taunton).

Clayhanger, Devon.—"Wellhayes Farm," 69 a. 1 r. 8 p., f.	1,225

By W. DEW & SON (at Carnarvon).

Llanrug, Carnarvon.—"Tanycoed" and "Lleinian" Farms (part of), 41 a. 3 r. 30 p., f.	2,430

By SALTER, SIMPSON, & SONS (at Norwich).

Forncett, Norfolk.—A freehold farm, containing 53 a. 2 r. 35 p.	500
Enclosures of land, 40 a. 3 r. 9 p., f.	400

July 19.—By BEAN, BURNETT, & ELDRIDGE.

City of London.—Fore-st., "The Grapes" p.-h., i.g.r. 17*5l.*, u.t. 29½ yrs., g.r. 126*l.*, with reversion	2,410
18, 20, and 22, Fann-st., a building site, area 1,327 ft., f.	2,680
Blackheath.—1, Ruthin-rd., u.t. 73 yrs., g.r. 4*l.* 10*s.*, r. 22*l.*	230
Fulham.—Dancer-rd., i.g.r. 48*l.*, u.t. 75 yrs., g.r. 6*l.*	900
1, Halford-rd., u.t. 75½ yrs., g.r. 6*l.*, r. 35*l.*	290

By HAMPTON & SONS.

Putney Heath.—"Bristol House," and 8 a. 1 r. 12 p., f.	25,000
Guilden Morden, Herts.—"Morden House," and about 13 a., f.	2,650
Chiswick.—17, Brandenburgh-rd., u.t. 76¼ yrs., g.r. 7*l.* 10*s.*, r. 45*l.*	450

By G. B. HILLIARD & SON.

Hockley, Essex.—A freehold farm, area 202 a 1 r. 30 p.	1,500
Leytonstone.—Fairlop-rd., f.g.r. 5*l.*, reversion in 80 yrs.	125
Southminster, Essex.—A freehold farm, area 48 a. 2 r. 22 p.	500
Enclosure of land, with two cottages, 49 a. 0 r. 20 p., f.	550
"Ratsborough Farm," 152 a. 3 r. 23 p., f.	3,500
Enclosure of land, 37 a. 2 r. 10 p. f.	720
"Bitch Hunter's Farm" and two cottages, 50 a. 3 r. 22 p., f.	1,165
Asheldham, Essex.—"Washes Farm," 54 a. 3 r. 23 p., f.	500

By THOMAS, PEYER, & MILES.

Lambeth.—Upper Marsh, "The Duke's Arms" p.-h. f., r. 100*l.*	3,500
Chelmsford, Essex.—Conduit-st., "The White Hart Hotel," f., r. 140*l.*	7,250
Great Baddow, Essex.—Lower Green, "The Labourers' Arms" b.-h., c.	175
"The Admiral Rous" p.-h., f.	850
Ingatestone, Essex.—"The Cricketers' Inn," f.	1,200
"The Queen's Head" b.-h., f.	825
Burnham-on-Crouch, Essex.—"The Oyster Smack" Inn, f.	1,500

By RUMBALL & EDWARDS.

Redbourn, Herts.—"The Punch Powl" p.-h., f.	2,100
St. Albans, Herts.—Upper Dagnall-st., "The Hope" b.-h., f.	1,300
London-rd., "The Crystal Palace Inn," f., r. 65*l.*	3,350
Luton, Beds.—Cumberland-st., "The Blue Lion" b.-h., f., r. 45*l.*	2,750
Duke-st., "Duke of Cambridge" b.-h., f.	1,500
Brunswick-st., &c., a corner building site, f.	300
Harpenden, Herts.—"The Leather Bottle" b.-h., f.	1,325
Dunstable, Beds.—Markgate, "The Bull and Butcher" b.-h., f.	250
Hitchin, Herts.—Offley, "The Bull" b.-h. and two cottages, f.	1,000
St. Albans, Herts.—Potter's Crouch, "The Holly Bush" p.-h. and two cottages, f.	1,950

By Messrs. SPELMAN (at Norwich).

Norwich.—St. Giles'-rd., "The Plantation," and 2¼ a., u.t. 33 yrs., g.r. 31*l.* 10*s.*	1,500
St. Giles'-rd., "The Beeches," u.t. 33 yrs., g.r. 15*l.*	800
Heigham-grove, "The Elms," and 3 r. 20 p., f.	1,900
1 to 7, Chester-pl., and "Chester House" and "The Rosary," f.	8,830
Clarendon-rd., a freehold plot of land	210
Heigham-grove, "Gayton House," f.	920
Post Office-st., a shop and house, u.t. 153 yrs., g.r. 4*l.*	900

By G. F. BEARN & C. WATTS (at St. Ives).

Elsworth, Cambs.—Three houses, four cottages, and 3 a. 3 r. 39 p., f. and c.	545
Various enclosures, 184 a. 0 r. 33 p., f. and c.	2,225
A freehold house and 3 a. 1 r. 35 p.	360

By NICHOLSON, GREAVES, & Co. (at Rotherham).

Rowmarsh, Yorks.—"The Roundwood Colliery," 778 a., u.t. 30 to 90 yrs., r. 3,910*l.*	15,100

July 20.—By LUCE, YOUNG, & LUCE (at Chepstow).

St. Briavels, Glos.—Enclosures of land, 6 a. 0 r. 27 p., f.	£360
West Dean, &c., Glos.—Two cottages and 2 r. 0 p., f.	175

By R. HADDOCK.

Croydon.—110, 120, 122, 124, and 126, St. James'-rd., f., r. 210*l.* 10*s.*	3,200

By NOTLEY & Co.

Greenwich.—Blackheath-rd., f.g.r. 80*l.*, reversion in 81 yrs.	2,320
Bowes Park.—30 and 32, Moffatt-rd., f., r. 62*l.*	725
Barbican.—Red Lion Passage, a plot of land, area 400 ft., f.	165

By DRIVER & Co.

Datchet, Bucks.—Old Windsor-rd., the Sandlea Estate, 16 a., f.	11,500

By HUMBERT, SON, & FLINT.

Soho.—33, 34, 55, and 36, Rupert-st., u.t 64½ yrs, g.r. 120*l.*, r. 540*l.* 14*s.*	4,190
Archer-st., "Archer-street Chambers" and "Elkington-bldgs.," u.t. 64½ yrs., g.r. 16*l.*	3,200
Lyminge, Kent.—"Sibton House," and 589 a. 3r. 7 p., f.	12,750
"The Valley Farm," 13 a. 1 r. 21 p., f.	250
A freehold cottage and 1 a. 2 r. 30 p.	150
Enclosures of land, 14 a. 2 r. 20 p., f.	570

By DEBENHAM, TEWSON, & Co.

Norbiton, Surrey.—Station-rd., &c., a freehold building estate, area 22 a. 2 r. 14 p.	13,040
City of London.—36 and 38, Moor-lane, and 2, 3, and 4, Ropemaker-st., u.t. 65 yrs., g.r. 375*l.*	3,662

By FLEURET, SON, & ADAMS (at Masons' Hall Tavern).

Kensington.—Earls Court-rd, "The Bolton Hotel," u.t. 60 yrs., r. 600*l.*, with goodwill	40,000

By R. SMITH & Co. (at "Masons' Hall Tavern").

Kentish Town-rd.—"The Abbey Tavern," u.t. 74 yrs., r. 225*l.*, with goodwill	23,100
Walworth.—Brandon-st., "The Northumberland" p.-h., u.t. 38 yrs, r. 105*l.*, with goodwill	13,150

By ALFRED RICHARDS (at Tottenham).

Edmonton.—25, 29, and 31, Graham-rd., u.t. 81 yrs, g.r. 9*l.*	120
Wood Green.—67, 69, and 71, Truro-rd., f., r. 55*l.* 18*s.*	535
1 to 9, Finsbury cottages, f., r. 163*l.* 16*s.*	1,260
62 to 72 (even) Nightingale-rd., f., r. 163*l.* 16*s.*	1,530
9 and 10, Dovecote Villas, u.t. 64 yrs., g.r. 12*l.* 10*s.*, r. 100*l.*	1,100
Tottenham.—118 to 126 (even) Clyde-rd., u.t. 175 yrs., g.r. 8*l.* 8*s.* 4*d.*	665

By W. & B. HOBBS (at Ashford).

Old Romney, Kent.—Two enclosures, 30 a. 2 r. 39 p., f.	1,000
Mersham, Kent.—"Johncock Farm," 43 a. 3 r. 11 p., f.	800
Kennington, &c., Kent.—"Fleet cottages," f., r. 31*l.* 4*s.*	380
Boughton Aluph, Kent.—Six cottages, f., r. 54*l.* 12*s.*	650

By MASON & SON (at Spalding).

Moulton, Lincs.—A freehold estate comprising 125 a. 3 r. 3 p.	4,280

By HEPPER & SONS (at Leeds).

Headingley, Yorks.—Burton-cres., a freehold building site, area 6,142 yds	1,000

July 21.—By BAXTER, PAYNE, & LEPPER.

Swanley, Kent.—1 and 2, Beaumont-villas, f., r. 70*l.*	1,000
Bexley-rd.—Five plots of building land, f.	280

By J. H. BULMER.

Rotherhithe.—18 and 19, Manor-lane, u.t. 53 yrs., g.r. 4*l.* 10*s.*	280
25, Princes-st., f., subject to 1*l.* 9*s.* 9*d.* rent charge	310

By GENDLE & BELFIELD.

Surbiton.—2 to 6, Westfield-rd., f., r. 145*l.*	1,495
Leyton.—Wilmot-rd., "Joseph's Villa," u.t. 72 yrs., g.r. 7*l.* 10*s.*, r. 26*l.*	100

By HAROLD GRIFFIN.

Pimlico.—41, 43, and 45, Denbigh-st., u.t. 33 yrs., g.r. 24*l.*, r. 177*l.*	1,575
Battersea.—20 to 27, Rowena-cres., u.t. 80 yrs., g.r. 30*l.*, r. 196*l.* 6*s.*	1,315
Peckham.—54, Asylum-rd., u.t. 50 yrs., g.r. 2*l.* 15*s.*	335

By E. HOLSWORTH.

Tottenham.—276, High-rd., 1, 2, and 3, Bull-row, f., r 50*l.*	1,030

By MARK LIELL & SON.

Stratford.—38, 40, 66, 68, 70, and 72, Warwick-rd., u t. 88½ yrs., g.r. 33*l.*, r. 173*l.* 18*s.*	1,090
Bromley.—19 and 20, Tidey-st., u.t. 77 yrs., g.r. 7*l.*	175
Plaistow.—156 to 188 and 202 to 206 (even), Grange-rd., f.	3,720
15, Station-rd., f.	455

By E. W. RICHARDSON & SON.

Finchley.—2 and 3, Long-lane, f., r. 66*l.*	970
Strand.—10, Vere-st., f., r. 45*l.*	750
Acton.—21, 23, 25, and 27, Berrymead-rd., f., r. 88*l.* 8*s.*	700
Kingsland.—4 and 6, Essex-st., u.t. 72 yrs., g.r. 14*l.* 15*s.*, r. 85*l.*	540

By F. H. B. RIDDLE.

Malda Vale.—Nos. 20 and 22, u.t. 12 yrs., g.r. 13*l.* 6*s.* 8*d.*, r. 110*l.*	600
109 and 111, Portsdown-rd., u.t. 74 yrs., g.r. 4*l.*, r. 130*l.*	1,400
Marylebone.—23, Great James-st., u.t. 25¾ yrs., g.r. 40*l.*, r. 65*l.*; also 2 and 3, George-st., u.t. 75¼ yrs., g.r. 18*l.* 18*s.*, r. 52*l.*	215

By WATERER & SONS.

Leatherhead, Surrey.—1 to 7, Booth's Cottages, f., r. 72*l.* 16*s.*	750
Walthamstow.—132, Wood-st., c., r. 30*l.*	350
Walton-on-Thames.—High-rd., a moiety of enclosures of land, 36 a. 0 r., 21 p., f.	1,000
Clapton.—192, 194, 196, and 198, Millfield-rd., f.	990
Millfield-rd., f.g.r.'s 8*l.*, reversion in 74 yrs.	245

By FOSTER & CRANFIELD.

Camden Town.—9 to 15 (odd), Torriano-av., u.t. 46 yrs., g.r. 10*l.*, r. 170*l.*	1,530
Kennington.—149 and 150, Princes-rd., f., r. 70*l.*	800
Anerley.—15, Station-rd., f., r. 57*l.*	1,105
Banstead, Surrey.—A rent charge of 4*l.* 9*s.* 3*d.*	115
Shepreth, Cambs.—"The Plough Inn," and 1 a. 2 r. 21 p., f.	550

By FAREBROTHER, ELLIS, & Co. (at Worcester).

Eldersfield, Worcester.—Tithe rent charges of 13*l.* 15*s.* 7*2d.*	150

By RENDELL & SYMONS (at Newton Abbot).

Torbryan, &c., Devon.—"Bremridge Estate," 42 a. 0 r. 9 p., f. £1,010
Manaton, Devon.—"Holwell Estate," 271 a. 2 r. 11 p., f. 2,500

By A. DOWELL (at Edinburgh).

Ecclesmachen, &c., Linlithgow.—"The Estate of Bangour," 775 a. 13,000

By W. DEW & SON (at Denbigh).

Denbigh.—Henllan-st., "The Hand Inn" and "Hand Cottage," area 805 yards, f. 1,885

By JOHN FRANCIS (at Tenby).

Amroth, Pembroke.—"The Amroth Castle Estate," 235 a. 1 r. 12 p., f. 10,360
"Long Park" (parts of), 10 a. 1 r. 28 p., f. ... 405
"The Moor Farm," 36 a. 1 r. 33 p., f. 405
"Ryelands Hill Fields," 37 a. 3 r. 17 p., f. ... 380
"The Craigyborion Estate," 218 a. 3 r. 16 p., f.. 3,900
"Penybont Farm," 81 a. 0 r. 20 p., f. 1,240

By REEVE & FINN (at Rye).

Brede, Sussex.—Grocer's shop, beer shop, and wheelwright's shop, and 4 a. 1 r. 34 p., f. 940
"Broad Oak House" and 7 a. 3 r. 25 p., f. 610
Ewhurst, Sussex.—"Prospect Cottage," f. 210

July 22.—By C. C. & T. MOORE.

Whitechapel.—14 to 30 (even), Scarborough-st., u.t. 30 yrs., g.r. 33*l.* 14*s.* 8*d.* 3,310
Spitalfields.—17 and 18, Great Pearl-st., and 5 and 7, Grey Eagle-st., f 1,220
13 to 19 (odd), Little Pearl-st., and 1 to 7, Crown-court, f. 2,050
24½, 24 to 28, 28a, and 30, Great Pearl-st., 1, Half Wilk-court, and 1 to 3, Wilk-court, f 3,350
Stoke Newington.—34, Brooke-rd., u.t. 81 yrs., g.r. 7*l.* 10*s.*, r. 39*l.* 465
Walthamstow.—Woodville-rd., 3 plots of building land, f. 120
Stepney.—69, Gold-st., u.t. 27 yrs., g.r. 2*l.* 17*s.* 6*d.* 165
Silvertown.—Oriental-rd., a plot of building land, area 2,050 yds., f. 730

By H. J. BLISS & SONS.

Bethnal Green.—5 and 6, Wood-st., f., r. 26*l.* 530
Crouch End.—166, 168, and 170, Park-rd., u.t. 69 yrs., g.r. 18*l.*, r. 99*l.* 720
Mile End.—13, 14, and 15, King-st., f. 930
Bethnal Green.—20, 22, 24, 34, 36, 38, 40, Viaduct-st., u.t. 20 yrs., g.r. 19*l.* 10*s.* 685

By SPARROW & SON.

Finchley.—Woodsidegrange-rd., "Inglenest" and "Essendene," r. 98*l.*, f. 1,645
Woodsidegrange-rd., 3 plots of land, f. 650

By FAREBROTHER, ELLIS, & Co.

City of London.—10, Laurence Pountney-lane, area 2,550 ft., f., r. 440*l.* 6,150

By BEADEL, WOOD, & Co.

St. Osyth, Essex.—"Park Farm," 625 a. 1 r. 3 p., f. 7,300
Penshurst, Kent.—Enclosure of land, 10 a. 0 r. 12 p., f. 250
Kensington.—Cottesmore Gardens, &c., i.g r. 60*l.*, u.t. 34¾ yrs., g.r. nil 1,065
Sydenham.—Venner-rd., a plot of land, f. 450
Greenwich.—Vanbrugh Hill, a corner plot of land, f. 560

By PROTHEROE & MORRIS.

Leytonstone.—Hartley-rd., a block of building land, f. 1,400
Buckhurst Hill.—4, George-villas, f., r. 19*l.* 10*s.* .. 270
Leytonstone.—114 to 128 (even), Cann Hall-rd., u.t. 87 yrs., g.r. 32*l.* 1,290

By STIMSON & SONS.

Bourne End, Bucks.—1 and 6, Spring Gardens, f. 1,350
Camberwell.—95 and 97, Peckham-rd., and 319 to 325 (odd), Southampton-st., area about 1 a., f. 5,500
Peckham.—Middle-st., f.g.r. 8*l.*, reversion in 56 yrs. 215
Walworth.—57, Finchley-rd., u.t. 53 yrs., g.r. 4*l.*, r. 32*l.* 330
Camberwell.—28a, Vaughan-rd., u.t. 41 yrs., g.r. 8*l.* e.r. 45*l.* 380

By NEWBON, EDWARDS, & SHEPHARD.

New Southgate.—92 and 94, Holly Park-rd., u.t. 81 yrs., g.r. 12*l.*, r. 48*l.* 370
Clapton.—177, 179, and 181, Rushmore-rd., u.t. 81 yrs., g.r. 16*l.* 10*s.* 450
Homerton.—47 and 49, Pedro-st., u.t. 81 yrs., g.r. 11*l.* 265
Tottenham.—17 to 20, Manor-rd., u.t. 80 yrs., g.r. 18*l.* 400
Canning Town.—20, 22, and 24, Trinity-st., u.t. 78 yrs., g.r. 8*l.* 5*s.* 455
Highbury.—Conewood-st., a freehold plot of land 310
New Southgate.—Glenthorne-rd., f.g.r. 5*l.* 5*s.*, reversion in 99 yrs. 125
Camden Town.—Arlington-rd., f.g.r. 16*l.*, reversion in 43 yrs. 550
Holloway.—Hornsey-rd., "The Monarch" p.-h., i.g.r. 80*l.*, u.t. 46 yrs., g.r. 20*l.* 1,260
Clerkenwell.—14 and 15, Vineyard-walk, and 22 and 24, Pine-st., u.t. 36 yrs., g.r. 10*l.* 1,080
Barnsbury.—17, Huntingdon-st., u.t. 52 yrs., g.r. 5*l.* 10*s.*, r. 40*l.* 415

By H. HENDRIKS (at Birmingham).

Birmingham, Warwick.—Bradford-st., "The Britannia" Foundry, area 2.625 yds., f. 3,000

By J. H. BETHELL (at East Ham).

Manor-Pk.—Seventh-av., 88 plots of building land, f. 3,855

By FLICK & SON (at Saxmundham).

Saxmundham, Suffolk.—Three houses and shop cottage, f. and c. 1,195
Carlton, &c., Suffolk.—A farm, containing 45 a. 3 r. 3 p., f. and c. 420
Rendham, Suffolk.—Enclosures of land, 31 a. 1 r. 15 p., f. 338

By HAWKES, RISDONS & Co. (at Wellington).

Chipstable, Somerset.—"Chipstable Farm," 63 a. 3 r. 13 p., f. 1,800

By WYATT & SON (at Chichester).

Chichester, Sussex.—Southgate, "Sunnyside," f., r. 90*l.* 1,625
Basin-rd., an enclosure, 1 a. 1 r. 26 p., f. 250
17, 18, 20, & 21, Basin-rd., f. 470
18, Southgate, f., r. 20*l.* 310
23 and 24, St. Paul's-rd., f. 250
Oving-rd., a freehold house and shop 370

By KING & CHASEMORE (at Pulborough).

Storrington, Sussex.—High-rd., eleven building plots, f. 376
"Yew Tree Cottage" and 4 a. 1 r. 28 p., f. 380
A cottage and two enclosures, 1 a. 0 r. 32 p., f... 170

July 23.—By C. RAWLEY CROSS & Co.

Shepherd's Bush.—175 and 177, Goldhawk-rd., u.t. 46 yrs., g.r. 8*l.* 8*s.* £910
Kensington.—138, 142, 144, 146, and 148, Addison-gardens, u.t. 97 yrs., g.r. 42*l.* 10*s.*, r. 240*l.* 2,265
Hammersmith.—1, 3, and 5, Lena-gardens, u.t. 79 yrs., g.r. 21*l.*, r. 128*l.* 1,305
7, Barb-mews, u.t. 79 yrs., g.r. 3*l.*, r. 22*l.* 195

By CHARLES HALL.

Clapham.—30, Orlanda-rd., u.t. 80 yrs., g.r. 9*l.*, r. 48*l.* 470
Wandsworth.—256, Trinity-rd., u.t. 82 yrs., g.r. 12*l.*, r. 50*l.* 500
Balham.—8, Ormeley-rd., u.t. 82 yrs., g.r. 8*l.* 10*s.*, r. 40*l.* 335

By Messrs. MELLERSH.

Grayswood, Surrey.—A freehold building site, 10 a. 1 r. 3 p. 900

By MULLETT, BOOKER, & Co.

Hyde Park.—18, Cleveland Gardens, u.t. 41½ yrs., g.r. 2*l.*, r. 210*l.* 2,200
13, Southwick-cres., u.t. 38½ yrs., g.r. 6*l.* 2,750

By RIDER & SONS.

Notting Hill.—92 and 94, Bramley-rd., and 31, Blechynden-st., u.t. 67 yrs., g.r. 18*l.* 430

By EDWIN EVANS.

Balham.—49, Balham Hill, and 8a. 1 r. 36 p., f. .. 29,550
Battersea.—104, New-rd., u.t. 30½ yrs., g.r. 3*l.* 10*s.* 170
Brixton.—30, Arlingford-rd., u.t. 77¾ yrs., g.r. 6*l.* 10*s.* 220

By GIDDY & GIDDY.

Hampstead.—31, 33, and 35, Stanley Gardens, u.t. 66 yrs., g.r. 27*l.*, r. 195*l.* 1,500

By RUTLEY, SON, & VINE.

Stockwell.—22, Tasman-rd., u.t. 78 yrs., g.r. 6*l.* 6*s.*, r. 26*l.* 300
Clapham.—33, Jefferies-rd., u.t. 70 yrs., g.r. 12*l.* 10*s.*, r. 40*l.* 360
Palmers Green.—1 to 12, and 21, 22 and 23, Green Brae, and two plots of land, u.t. 82 yrs., g.r. 43*l.* 1,000
Holloway.—42, Tremlett-grove, u.t. 73 yrs., g.r. 6*l.*, r. 38*l.* 400
Hornsey.—Westfield-rd., f.g.r. 12*l.*, reversion in 83 yrs. 345
Haverstock Hill.—42, Adelaide-rd., u.t. 42 yrs., g.r. nil, r. 80*l.* 1,060
Regent's Park.—72, Albert-st., u.t. 68 yrs., g.r. 15*l.*, r. 70*l.* 800
Tottenham Court-rd.—17, Tottenham-st., c. 925

By TRIST & Co.

City-rd. — Wharf-rd., "The Wharf-rd. Distillery" p.-h., f., r. 80*l.* 4,700
Camberwell.—Bushey Hill-rd., f.g.r. 24*l.*, reversion in 84 yrs. 680
Islington.—3 and 5, Spencer-st., u.t. 20 yrs., g.r. 12*l.*, r. 91*l.* 465
Barnsbury.—1, Thornhill-cres., u.t. 52 yrs., g.r. 8*l.*, r. 55*l.* 500
Islington.—8 and 17, Cloudesley-sq., u.t. 4 yrs., g.r. 16*l.*, r. 92*l.* 110
65 and 67, College-st., u.t. 18½ yrs., g.r. 16*l.*, r. 74*l.* 465

By G. B. HILLIARD & SON (at Chelmsford).

Danbury, Essex.—Enclosures of land, 17 a. 0 r. 16 p., c. 310
Terling, Essex.—"Rolfe's Farm," 22 a. 2 r. 36 p., f. 300
Stock, Essex.—A house and 8 a. 3 r. 13 p., f. and c. 450
West Hanningfield, Essex.—Four freehold cottages, r. 20*l.* 16*s.* 260
Gt. Baddow, Essex.—Lower-green, a freehold beer-house 460
Springfield, Essex.—Freehold rent-charges of 16*l.* 10*s.* 1*d.* 415

By A. SAVILL & SON (at Epping).

Epping, Essex.—Hemnal-st., "Chestnut Cottage" and three cottages in High-st., c. 690
Rye Hill, enclosure of land, 8 a. 1 r. 13 p., c. .. 150
North Weald, Essex.—A freehold cottage 165
Magdalen Laver, Essex.—Two enclosures and two cottages, 6 a. 2 r. 6 p., f. 295
Harlow, Essex.—Ongar-rd., two fields, 24 a. 3 r. 7 p., f. 600

July 24.—By J. J. CUNNAH (at Festiniog).

Blaenau-Festiniog.—Merioneth, "Cynfal Bach Farm," 55 a. 1 r. 21 p., f. 1,150
"Bron-y-foel" "Tyddyn Bach Farms," 244 a. 2 r. 17 p., f. 1,350
"Hafod Fawr Farm," 143 a. 0 r. 26 p., f. 1,150

By Messrs. SPELMAN (at Norwich).

Winterton, Norfolk.—A farm comprising 79 a. 3 r. 35 p., f. and c. 900
Enclosures of land, 4 a. 0 r. 23 p., f. 120
Six houses and a plot of land, f. 495
West Somerton, Norfolk.—An enclosure of land, 2 a. 3 r. 7 p., f. 120
Mattishall, Norfolk.—A farm comprising 56 a. 0 r. 7 p., f. and c. 625
Starston, Norfolk.—A freehold farm, area 72 a. 1 r. 10 p. 835
Five enclosures, 27 a. 2 r. 37 p., f. 250

By FENN & Co. (at Colchester).

West Mersea, Essex.—"Waldegraves and Decoy Farm," 145 a. 1. 20 p., c. 740
"Burrow Hill Lands," 38 a. 3 r. 25 p., c. 300
An Oyster Laying in Salcot Creek, c. 210
Great Wigborough, Essex.—"Rouse's Farm," 44 a. 1 r. 15 p., f. 300
Little Wigborough, Essex.—"New Hall Farm," 137 a. 3 r. 8 p., f. 540
St. Osyth, Essex.—"Maldon Wood Farm," also a cottage, 154 a. 0 r. 11 p., f. and c. 2,355
"Jaggard's Farm," 23 a. 2 r. 26 p., c. 300
"Hartley Wood Farm," 76 a. 3 r. 22 p., f. 925

By BROWN & FOULKES (at Aylesbury).

Quainton, Bucks.—"Banner Hill" or "Lower Farm," 167 a. 3 r. 20 p., f. 3,850
"Cross Farm," 158 a. 1 r. 1 p., f. 6,550

By MORRIS, SONS, & PEARD (at Taunton).

Dulverton, Somerset.—Various enclosures, 40 a. 3 r. 10 p., f. 1,180

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8 0/0 0/0/0
Teak, E.I.	load	20/10/0 15/10/0
Sequoia, U.S.ft.cu.		1/8 1/10
Ash, Canada	load	3/5/0 4/10/0
Birch, do.		4/5/0 6/0/0
Elm, do.		4/0/0 5/5/0
Fir, Dantzic, &c..		2/5/0 4/5/0
Oak, do.		2/10/0 3/10/0
Canada		5/10/0 6/10/0
Pine, Canada red		0/0/0 0/0/0
Do. Yellow		2/0/0 4/0/0
Lath, Dantzic, fath		4/10/0 5/10/0
St. Petersburg..		5/0/0 6/10/0
Wainscot, Riga, &c., log		2/10/0 3/15/0
Odessa, crown		2/10/0 3/15/0
Deals, Finland and 1st std	ton	8/0/0 8/10/0
Do. 4th & 3rd		8/0/0 8/10/0
Do. Riga		6/10/0 7/10/0
St. Petersburg, 1st yellow		10/0/0 12/10/0
Do. 2nd yellow		9/0/0 10/0/0
Do. white		8/10/0 10/10/0
Swedish		9/0/0 15/10/0
White Sea		9/10/0 16/0/0
Canada, Pine 1st		20/10/0 26/10/0
Do. do. 2nd		15/0/0 17/10/0
Do. do. 3rd, &c.		7/10/0 11/0/0
Do. Spruce, 1st		12/10/0 13/0/0
Do. do. 3rd and 2nd		8/0/0 9/0/0
New Brunswick		7/10/0 8/0/0
Battens, all kinds		5 0/0 10/0/0
Flooring boards, sq., 1 in. prep.		
1st		0/8/6 0/15/6
Do. 2nd		0/7/0 0/10/0
Other qualities—		0/5/0 0/6/6
Cedar, Cuba, ft.		/4½ /5
Honduras, &c.		/4 /5
Mahogany, Cuba		/5 /6½
St. Domingo, cargo av.		/4½ 2/2
Mexican, do. do.		/3½ /5
Tobasco, do. do.		/4 /7
Honduras, do.		/5 /6½
Box, Turkey, 1cm		4/0/0 25/0/0
Rose, Rio		7/0/0 24/0/0
Bahia		5/0/0 10/0/0
Satin, St. Dming.		0/0/6 0 0/0

TIMBER (*continued*).		
Satin, Porto Rico		0/0/6 0/0/6
Walnut, Italian		0/0 3 0/0/7
METALS.		
Iron—Pig, in Scotland	ton	2/4½ 0/0/0
Bar, Welsh, in London		5/15/0 5/17/6
Do. do. at works in Wales		5/10/0 5/12/6
Do. Staffordshire, in London		6/5/0 7/10/0
COPPER—British cake and ingot		51/0/0 51/10/0
Best selected		51/10/0 52/0/0
Sheets, strong		57/0/0 58/0/0
Chili bars		47/16/3 0/0/0
YELLOW MTL	lb.	4½d. 5d.
LEAD—Pig,		
Spanish	ton	22 8/9 22/12/6
English com. brands		22/10/0 23/15/0
Sheet, English 6 lbs. per sq. ft. and upwards		23/16/3 0/0/0
Pipe		24 6/3 0/0/0
ZINC—English sheet	ton	20/10/0 0/0/0
Vieille Montagne		0/0/0 0/0/0
Spelter		18/17/6 17/0/0
TIN—Straits		61/12/6 0/0/0
Australian		62/12 6 63/0/0
English Ingots		64/15/0 65/5/0
Banca		62/0/0 0/0/0
Billiton		59/15/0 60/0/0
OILS.		
Linseed	ton	15 5/0 0/0/0
Cocoanut, Cochin		27/15/0 0/0/0
Do. Ceylon		24/0/0 0/0/0
Palm, Lagos		24/10/0 0/0/0
Rapeseed, English pale		27/10/0 27/15/0
Do. Brown		27/0/0 27/10/0
Cottonseed ref.		15/17/6 16/0/0
Oleine		18/10/0 19/0/0
Lubricating U.S.		0/0/3 0/0/6
Do. black		0/0/0 0/0/0
TAR—Stockholm	barrel	29/0 0/0/0
Archangel		0/12/6 0/0/0
Turpentine		20/17/6 21/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender: and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

ABERDARE—For the erection of thirty-five houses, for the College Green Building Club. Messrs. Watkins & Davies, architects, 4, Canon-street, Aberdare:—

J. D. Wilkins	£851	8 6	W. Budding, Ponty-
Williams & James	247	10 0	minster (accepted) £235 0 0
J. Jones	240	10 0	Hopkins & Prosser .. 232 0 0

ABERDEEN (N.B.)—For the execution of road works, Leadside-road and Holburn-street, for the Town Council. Mr. Wm. Dyack, Burgh Surveyor, Town House, Aberdeen:—

J. Fyfe, Aberdeen £1,403 16 2

BELVEDERE (Kent).—Accepted for alterations and new drainage at the "Belvedere" Hotel. Mr. Albert L. Guy, architect, Bedford-row House, W.C., and 76A, High-street, Lewisham, S.E.:—

B. Weatherley, High-street, Lewisham, S.E. £520

BIRTLEY.—For the erection of a new police station, for the County Council. Mr. Wm. Crozier, C.E., County Surveyor, Shire Hall, Durham. Quantities by J. Ezra Miller, Sunderland:—

Draper & Sons	£839	10 0	Davison & Bolam £731 9 4
F. Caldcleugh	832	0 0	Burnett & Son, Birtley* 714 5 3
Thos. Hunter	794	5 0	* Accepted.

BISHOP AUCKLAND—For widening Newton Cross Bridge, for the Durham County Council. Mr. Wm. Crozier, C.E., County Surveyor, Durham:—

G. H. Bell, Bishop Auckland £561 19 0

BLACKBURN.—For the reconstruction of offices for the Improved Sanitation of Wards Nos. 9 and 10, Blackburn and East Lancashire Infirmary. Messrs. Simpson & Duckworth, architects, Richmond Chambers, Blackburn:—

J. Catterall	£413		W. H. Law £365
J. Parker	397		W. Edmundson 350
J. Fecitt & Sons	376		T. P. Wilson & Sons,
J. Sharples	370		Lower Darwen* 342
			* Accepted.

BLACKHEATH.—Accepted for the erection of a villa residence for the Rev. George Gates, M.A. Mr. Albert L. Guy, architect, Bedford-row House, W.C., and 76A, High-street, Lewisham, S.E.:—

Kennard Bros., Lewisham Bridge, S.E. £1,700

BRIDLINGTON.—For the erection of three houses, for Dr. E. Hutchinson. Mr. J. Earnshaw, architect, Bridlington Quay:—

Bailey	£660	0 0	J. Rennard, Building
T. Wood	639	15 0	ton Quay* £575 0 0
E. Wilson	578	1 5	* Accepted.

BRISTOL.—For fittings Royal Exchange Assurance new office, Corn-street, Bristol. Messrs. R. Milverton Drake & John M. Piaty, architects, Bristol:—

No. 1 Contract.

T. H. Brown	£502	0	Smith & Co.* £357 10
C. A. Hayes	497	0	

No. 2 Contract.

Smith & Co.* £175
* Both accepted.

CARMARTHEN.—For the erection of class-room and house, Bankffosfelen, for the Llangendeirne School Board:—

Carpentry.—D. Davies, Ffynonmenin, Llanelly £922
Masonry.—Gomer Davies, Pontyates, Kidwelly 885
Mainwaring Richards Bros., Cross Hands, Llanelly 885

CHELTENHAM.—For the erection of a kursaal, municipal offices, and winter garden, for the Corporation of Cheltenham. Mr. E. R. Robson, architect, 9, Bridge-street, Westminster, S.W. Quantities by Messrs. W. H. Barber & Sons, 22, Buckingham-street, Adelphi, W.C.:—

Norris & Son	£52,500		Parnell & Son £46,850
Foster & Dickson	51,855		Estcourt & Son. 46,602
J. Bentley	51,580		A. C. & S. Billings,
J. Thompson	48,970		Cheltenham* 42,109
Collins & Godfrey	47,092		

*For Municipal Offices only.

CHESHAM (Bucks).—For the erection of stabling at "The Cock" Inn, for Messrs. Salter & Co., Limited. Mr. C. P. Ayres, architect, Watford :—

Stratford	£292 0	Walls, Chesham*	£167 10
Mead	225 0	* Accepted.	

COCKERMOUTH.—Accepted for the execution of sewerage works, Allerby and Oughterside, for the Rural District Council. Mr. J. B. Wilson, C.E., Court Building, Cockermouth. Quantities by the engineer :—

James Watson, Crosby, Maryport, No. 1	£6 8 0	Allerby.	
" " " No. 2	147 10 1	Oughterside.	
	£233 18 1		

CROYDON.—For alterations to Campden Lodge, Addiscombe-road. Mr. A. Broad, architect, 3, High-street, Croydon :—

E. J. Saunders	£430	D. W. Barker	£362
E. P. Bulled & Co.	419	J. Burton & Son	359
Hanscomb & Smith	387	A. Bullock (accepted)	353

DAGENHAM.—For the execution of drainage works, Small-pox Hospital, for the West Ham City Council. Mr. Lewis Angell, Borough Engineer :—

Wm. Stibbs & Co.	£1,113 3 5	Gregar & Son	£626 0 0
Wm. Tradey	768 0 0	J. Jackson, Plaistow*	614 7 6
T. Adams	755 8 4	* Accepted.	

DOVER.—For the execution of sewerage and drainage works in the district, for the Town Council :—

Sewerage.

G. Bell	£5,669 5 5	J. Jackson	£4,666 9 8
S. Saunders	5,443 17 3	W. H. Saunders & Co.	4,640 0 0
F. Osman	4,908 16 6		

[Surveyor's estimate, £4,952.]

Surface Drainage.

S. Saunders	£2,265 18 4	G. Bell	£1,966 0 0
F. Osman	2,172 12 3	G. Munro	1,930 0 0
W. H. Saunders & Co.	2,082 0 0	J. Jackson	1,819 2 4

Surveyor's estimate, £1,650.

DROGHEDA.—For the erection of three dwelling-houses, Chord-road, for Miss M'Govern. Mr. L. Turley, C.E., 83, West-street, Drogheda :—

M. Fentony	£594	Collins Bros.	£510
P. J. Caffrey	589	P. McCann, Drogheda*	465
S. Smulien & Son	522	* Accepted.	

DUDLEY HILL.—Accepted for the erection of a warehouse. Mr. T. Leadley, architect, Coleridge-place, Bradford :—

Masonry.—Geo. Hullah, Wapping-road, Bradford
Joinery.—H. Waterhouse & Sons, Dudley Hill, Bradford
Plumbing.—J. Booth & Son, Dudley Hill, Bradford
Plastering.—T. Pickles, Dudley Hill, Bradford
Slating.—Hill & Nelson, Edmund-street, Bradford
Ironwork.—Roberts & Co., Ltd., Dudley Hill, Bradford
£1,422

EARL'S COLNE.—For the extension of grammar school buildings, consisting of the erection of master's house and boarding accommodation for twenty-four boys, with outbuildings, &c. :—

J. Kimberley	£4,520	Everett & Sons	£4,255
J. Broderick	4,443	Bowman & Sons	4,056
E. West	4,373	G. Rogers, Earl's Colne*	3,715
		* Accepted.	

EAST WICKHAM.—For the erection of the "Station" Hotel, Dover-road. Mr. Albert L. Guy, architect, Bedford-row House, 108 and 76A, High-street, Lewisham, S.E. Quantities by Mr. A. R. Brede, 58, Theobald's-road, W.C. :—

J. Godfrey & Son	£7,953	Jerrard & Sons	£5,883
Antill & Co.	5,997	T. Knight	5,799
Pritchard & Renwick	5,945	J. Otway, Chislehurst*	5,580
		* Accepted.	

EBBW VALE.—For improving road from Crom to Aberbeeg, for the Urban District Council. Mr. T. J. Thomas, Engineer, District Council Offices, Ebbw Vale :—

N. Bagley	£5,559 8 2	J. Preece	£4,335 18 10
Rowland & Lloyd	5,449 6 8	Batchelor & Snowden	4,149 10 10
C. Gardner	5,288 6 7	J. Monks & Co., Crumlin*	3,644 10 10
Lewis & Gross	4,966 7 2	* Accepted.	

EXETER.—For erecting a bakery, 115, Bath-road, for Mr. W. Prout. Mr. Walter B. Coles, architect, 31, Bath-road, Exeter. Quantities by Mr. Vincent Cattermole Brown, of Paignton :—

Mingo & Boon	£516	J. Hoare	£507
J. R. Gibbard	530	W. Gibson	500
Saunders & Biss	522	Westcott, Austin, & White*	460
		* Accepted.	

GATESHEAD-ON-TYNE.—For the erection of St. Chad's Parish Hall, schools, &c. Mr. Eugene E. Clephan, architect, St. Nicholas-chambers, Newcastle-on-Tyne :—

J. & W. Lowery	£1,803 18 0	I. Bewley	£1,490 5 2
Middlemas Bros.	1,623 0 0	Turner Bros., Benham-road, Gateshead-on-Tyne*	1,430 6 9
T. & R. Lamb	1,623 15 3		
J. Ross	1,578 1 1		

* Accepted conditionally.

HANLEY (Staffs).—For the erection of school buildings, Clarence-street, for the School Board. Messrs. Scrivener & Sons, architects, Howard-place, Hanley :—

J. Bagnall	£3,520 0	A. Ogden	£3,381 10
N. Bennett	3,500 0	G. Ellis	3,349 0
T. Godwin	3,400 0	C. Corner, Hanley*	3,350 0

* Accepted, subject to the approval of the Education Department.

HARROW.—For the erection of a cookery room, Harrow Weald Old Schools, for the School Board. Messrs. Houston & Houston, architects, 5, York-buildings, Adelphi, W.C. :—

Batchelor	£430	Haynes	£375
Bailey	395	Rackham, Harrow Weald*	355

* Accepted subject to sanction of the Education Department.

HEELEY.—Accepted for the erection of stores and houses, Gleadless and Carrfield road. Messrs. Hall & Fenton, architects, 10, Paradise-square, Sheffield. Quantities by the architects :—

Masonry.—J. A. Lenthall, Staniforth-road, Darnall, Sheffield	£1,445 0 0
Joinery.—C. H. Gillam, Langdon-street, Sheffield	922 0 0
Slating.—J. A. Lenthall, Darnall, Sheffield	103 0 0
Plastering.—Chadwick & Sons, Victoria-street, Sheffield	154 16 0
Plumbing.—H. Waddilove, Broad-street, Sheffield	235 0 0
Painting.—J. Clark, St. Mary's-road, Sheffield	54 6 10

KING'S LYNN.—For the erection of pumping-station at water-works, Gayton, for the Corporation. Mr. E. J. Sucock, C.E., Town Hall, King's Lynn :—

K. M. Parkinson	£3,960 0	H. G. Rudrum	£3,477 0
R. Dye	3,693 0	Read & Wildbur, King's Lynn*	3,350 0
Collins & Barber	3,530 0		
Medwell & Foreman	3,500 10	* Accepted.	

KINGSTON.—For the erection of Kingston Endowed Schools. Mr. A. J. Pilkington, architect. Mr. I. T. Carew, surveyor :—F. G. Minter (revised tender) £8,076 17

KIRKBY-IN-ASHFIELD.—For the erection of store buildings. Messrs. F. Ball & Lamb, architects, 5, Houndsgate, Nottingham :—

T. Cuthbert	£725	W. J. Bains	£653
J. Oscroft	709	H. Gilbert, East Kirkby, Notts*	659
W. Rigley	682	* Accepted.	
R. S. Webster	655		

LEAVESDEN.—For alterations to the St. Pancras Schools, for the Guardians of St. Pancras Union. Mr. C. P. Ayres, architect, Watford :—

Kimberley, Banbury	£1,426	Neal, Watford	£1,299
Brightman, Watford	1,305	Eames, Watford	1,251
Waterman, Watford	1,313	Clark, Watford	1,215
Darvill, Watford	1,293	T. Turner, Lim., Watford	1,197

LINCOLN.—For the erection of a tall chimney, Brayford Side, for the Corporation. Mr. R. A. Macbrair, City Surveyor, Lincoln :—

Myres & Warnes	£1,289 11	H. S. & W. Close, Lincoln (accepted)	£1,175 0
W. Pattinson & Sons	1,253 0		

LINCOLN.—For the erection of electricity works, offices, and stores, Brayford Side, for the Corporation. Mr. R. A. Macbrair, City Surveyor, Lincoln :—

J. M. Harrison	£4,992 0 0	Halkes Bros.	£3,996 0 0
W. Pattinson & Sons	4,553 0 0	W. Wright & Son, Lincoln (accepted)	3,756 9 4
H. S. & W. Close	4,081 0 0		

LONDON.—For building orchestral saloons and thirty additional class-rooms, at the Guildhall School of Music, for the Corporation of the City of London. Mr. A. Murray, City Surveyor, architect. Quantities by Mr. R. J. Stamp :—

Ashby & Horner	£20,571	Patman & Fotheringham	£17,421
Lawrence & Sons	20,428	Chessum	17,333
Mowlem & Co.	20,068	Atherton & Dolman	17,320
Larke & Son	18,839	Colls & Sons	17,227
Kirk & Randall	18,319	Perry & Co.*	16,695
Howel J. Williams	18,305	* Accepted.	

LONDON.—For pulling down and rebuilding No. 90, High-street, Marylebone. Mr. J. Randall Vining, architect, 89, Chancery-lane, W.C. :—

A. Scott & Son	£2,137	J. & C. Bowyer	£1,793
Spiers & Son	1,959	Perkins & Co.	1,793
F. T. Chinchen	1,820	Jerrard & Sons	1,750
J. Myring & Co.	1,799	Coulsell Bros. (accepted)	1,743

LONDON.—For pulling down and rebuilding of No. 4, High-street, Marylebone. Mr. J. Randall Vining, architect, 89, Chancery-lane :—

C. Wall	£2,105	J. & C. Bowyer	£1,733
J. & C. Woodman	2,082	H. M. Dove*	1,695
E. Lawrance & Sons	1,995	* Accepted.	

LONDON.—For pulling down and rebuilding of No. 88, High-street, Marylebone. Mr. J. Randall Vining, architect, 89, Chancery-lane :—

F. & H. F. Higgs	£2,398	W. Titmas & Sons	£2,140
C. Wall	2,376	H. M. Dove	2,090
W. Johnson & Co.	2,324	J. & C. Bowyer*	1,993
J. Myring & Co.	2,157	* Accepted.	

LONDON.—For the erection of entrance lodge at infirmary, Dartmouth Park Hill, for the St. Pancras Guardians. Messrs. Segrave, Browett, & Taylor, architects, 9, Warwick-court, High Holborn, W.C. :—

H. Green	£625	Barrett & Power	£559
Gardner & Hazle	582	T. Sobey	513
W. Thompson	577	J. W. Dixon, Highgate*	510
Coulsell Bros.	573	A. Harris	497
		* Accepted.	

LONDON.—Accepted for the erection of Coroner's Court and mortuary, for the Hammersmith Vestry. Mr. H. Mair, Surveyor, Vestry Offices, Hammersmith :—

T. W. Thomas, Black Lion-lane, Hammersmith £3,743

LONDON.—For the erection of shops and warehouses at 178 and 180, Goswell-road. Mr. Charles Bell, architect :—

F. G. Minter £2,300

LONDON.—For additions and alterations at 26, Lincoln's Inn-fields, for the Jewish Christianity Society. Mr. C. C. Bradley, architect :—

Godson & Son	£1,318	Oldrey	£985
Faulkner & Sons	1,153	F. G. Minter	897

LONDON.—For painting and repairs for the Lambeth Estate Company. Mr. R. T. Wreathall, surveyor :—

Hobson	£451	Pritchard & Renwick	£398
Laing & Son	400	T. G. Minter	354

LONDON.—For alterations and additions to the "Globe" public-house, Great Dover-street, Borough, S.E., for Mr. W. Morris. Mr. Albert L. Guy, architect, Bedford-row House, W.C., and 76A, High-street, Lewisham, S.E. Quantities by Mr. A. R. Brede, 58, Theobald's-road :—

Johnson & Co.	£3,895	Pritchard & Renwick	£3,134
Simmonds & Son	3,698	J. Godfrey & Son, Evering-road, Clapton, N.E.*	3,123
Antill & Co.	3,248	* Accepted.	
Courtney & Fairbairn	3,201		

LONDON.—For alterations and repairs to Nos. 13 and 15, Rushey Green, Catford, S.E., for Mr. W. J. Taylor, Lewisham, S.E. Mr. Albert L. Guy, architect, Bedford-row House, W.C., and 76A, High-street, Lewisham, S.E. :—

Rooney & Wootton	£469 7 6	Jerrard & Sons	£375 0 0
J. Laird	375 0 0	J. Watt, Catford*	256 0 0
Kennard Bros.	328 0 0	A. T. S. Carter†	79 0 0
* Accepted.		† Accepted for tiling.	

LONDON.—For alterations and additions to the "Ship" public-house, High-street, Norwood, S.E. Mr. Albert L. Guy, architect, Bedford-row House, W.C., and 76A, High-street, Lewisham, S.E. Quantities by Mr. F. Bull, 30, Bedford-row, W.C. :—

Godfrey & Son	£3,397	Bryan & Sons	£3,140
Antill & Co.	3,240	Jerrard & Sons, Loampit Vale, Lewisham, S.E.	3,089
Pritchard & Renwick	3,900		
Kennard Bros.	3,355		

LONDON.—For alterations and additions to the "King's Arms" inn, Barnsbury-road, N., for Mr. F. C. Ficken. Mr. Albert L. Guy, architect and surveyor, Bedford-row House, W.C., and 76A, High-street, Lewisham, S.E. :—

Simmonds & Son	£3,698	Pritchard & Renwick	£2,990
J. Godfrey & Son	3,177	Dearing & Sons	2,991
Beer & Gash	3,051	Courtney & Fairbairn	2,960
S. Jerrard & Sons	3,027	F. Voller, Wood Green*	2,840
		* Accepted.	

LONDON.—For alterations, &c., to the "Market Tavern," 144, York-road. Mr. Albert L. Guy, architect :—

		Fittings.
Antill & Co.	£4,586	£1,201
Ransom & Sons	4,577	1,141
Courtenay & Co.	4,496	1,256
Simmonds	4,391	879
Godfrey & Sons	4,285	1,210
Jerrard & Sons	4,093	917
Godson	4,021	931
Peterson	—	950

LONDON.—For alterations to 70 to 76, Courthill-road, Lewisham. Mr. Albert L. Guy, architect :—

J. Lawrence	£320	Wm. Anderton	£220
Ernest Mills	253	Weatherley & Sons	213

LONDON.—For internal cleaning, &c., at the Royal London Ophthalmic Hospital, Moorfields. Messrs. Lander & Bedells, architects, 6, John-street, W.C. :—

Williams & Son	£246	J. Heeps (accepted)	£141
Thos. Sobey	196		

LONDON.—For the erection of steam laundry, at Lordship-lane, East Dulwich, for Messrs. Golden. Mr. E. J. Strevens, architect :—

J. & F. Higgs	£2,909	Burman & Co.	£2,662
Pretty & Co.	2,820	Tyerman & Co.	2,650
Holliday & Greenwood	2,720	H. Line	2,478
W. Downs	2,680		

MERTHYR TYDFIL.—For the erection of seventeen houses, for the Garth Building Club. Mr. Matthew Warlow, architect, Warlow-street, Merthyr Tydfil :—

John James	£4,332 17 6	Benjamin Davies	£3,816 0 0
John Jenkins	4,295 0 0	J. Francis Jones*	3,312 0 0
Samuel Hawkins	3,955 0 0	* Accepted.	

[All of Merthyr Tydfil.]

MIDDLEWICH.—For the erection of technical schools and free library buildings, for the Urban District Council. Mr. R. T. Worth, C.E., Town Hall-chambers, Middlewich :—

E. W. Bostock	£2,425 0	Clarke & Son, Middlewich*	£2,023 0
J. Matthews	2,298 0	* Accepted.	
Birchall Bros.	2,087 17		

NEASDEN.—For the erection of two cottages, Neasden. Messrs. Willis & Freeman, architects :—

H. Line £390

NEWMARKET.—Accepted for additions to hospital, Fordham-road, Exning, for the Newmarket and Moulton Rural District Councils. Mr. John Brown, Surveyor and Inspector of Nuisances, Burwell, Cambs. :—

Tweed Bros., Moulton £170

NEWTON-LE-WILLOWS (Lancs.).—For the erection of purifying house, &c., at gasworks, for the Newton-in-Makerfield Urban District Council. Mr. Richd. Brierley, Engineer, Town Hall, Earlestown, Newton-in-Makerfield :—

G. Finning	£1,279 17	Exclusive of iron roof.	
Sayce & Randle	1,148 0		
Eli Bunting	1,163 0		
Fitzgerald Bros., Earlstown (accpd.)	1,004 15		

PETERBOROUGH.—For the erection of two cottages, North Bank, for Messrs. Turnill. Mr. J. G. Stallebrass, architect, North-street, Peterborough :—

Walker	£300 0	J. G. Nichols	£300 0
Bailey	432 4	R. J. Nichols	372 0
Gray	429 0	Watson & Lucas*	369 0
		[All of Peterborough.]	
		* Accepted.	

RICKMANSWORTH.—For alterations to business premises, for Mr. J. R. Ibbotson. Mr. C. P. Ayres, architect, Watford :—

Brown	£596 0	Eames	£369 0
Reed	490 0	Holland, Rickmansworth*	342 19
		* Accepted.	

SPORLE (Norfolk).—For the erection of a church. Mr. Herbert J. Green, architect, 31, Castle Meadow, Norwich :—

Bardell Bros.	£1,709 5 3	Cornish & Gaymer	£1,644 12 6
R. Chapman	1,704 16 0	W. J. Larner	1,559 18 0
J. Youngs & Son	1,671 18 0		

SUTTON (Surrey).—Accepted for alterations and additions and erecting billiard room at the "Grapes" public-house, High-street. Mr. Albert L. Guy, architect, Bedford-row House, W.C., and 76A, High-street, Lewisham, S.E. :—

Harris, Sutton £3,500

SWILLAND (Suffolk).—For the erection of residence at the schools, for the School Board. Mr. J. S. Corder, architect, Wimbourne House, Ipswich :—

A. Sadler	£593 0	A. E. Kersey	£390 0
G. Barrell	430 0	J. Gibbons, Crowfield*	342 10
		* Accepted.	

SWINDON.—For the construction of settling tanks and filters &c., Broome, for the Urban District Council. Messrs. Shopland & Redman, engineers, Newport-street, Swindon. Quantities by the Engineers :—

W. L. Meredith	£1,842 19 9	W. H. Smith & Son, Clifton, Bristol*	£1,375 5 7
H. Hill	1,595 2 9		
B. Winchcombe	1,567 3 0	* Amended. Accepted.	

TAVISTOCK.—For the construction of drainage works, for the Rural District Council. Mr. G. D. Bellamy, C.E., 6A, Courtenay-street, Plymouth :—

W. C. Shaddock	£2,761	R. Duke, Plymouth*	£1,680
J. Fisher	1,920	* Accepted.	

WALSALL.—For the erection of school buildings, Croft-street, Bischills, for the School Board. Messrs. Bailey & McConnal, architects, Bridge-street, Walsall :—

H. Lovatt	£2,908	W. Kendrick	£2,790
J. Harley & Son	2,875	J. Guest & Sch	2,675
T. Tildesley	2,860	W. Wistance	2,585
J. Mallin	2,850	J. Dallon	2,530
G. Lynes	2,810	S. Wootton, Walsall*	2,439
H. Willcock	2,730	* Accepted.	

WATFORD.—For alterations to premises, 159, High-street, for Mr. E. Aubon. Mr. C. P. Ayres, architect, Watford :—

Brightman	£533	Judge, Watford*	£482
Barnes & Williams	482	* Accepted.	

WATFORD.—For alterations to the "King's Head" inn, High-street, for Benskin's Watford Brewery, Ltd. Mr. C. P. Ayres, architect, Watford :—

Reed	£3,710	Waterman	£3,597
Judge	3,696	Brightman, Watford*	3,543
		* Accepted.	

WATFORD.—For the erection of stabling and stores at 95, High-street, for Messrs. Durand, Sedgwick, & Bird. Mr. C. P. Ayres, architect, Watford :—

Dove	£1,075	Clark	£950
Wiggs	1,050	Eames	944
Waterman	1,043	Cambridge	927
Brightman	1,025	Reed	923
Neal	1,020	Watkins, Watford*	890
Turner, Ltd.	982	* Accepted.	

WATFORD.—For additions to the Watford District Cottage Hospital. Mr. Charles P. Ayres, architect, Watford :—

Andrews	£1,250	Eames	£1,188
Neal	1,195	Waterman	1,080
Wiggs	1,115	Reed	1,070
Darvill	1,099	T. Turner, Lim., Watford*	1,067
Clifford & Gough	1,098	Watkins	1,038
Brightman	1,090	Cambridge	977
		* Accepted.	

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Town Hall and Law Courts	Cardiff Corp.	500l. 300l. ; 200l.	Dec. 4

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Twenty-five Houses, Richmond-street, Bridlington Quay	W. Battle	J. Barnshaw, Archt. Wellington-road, Bridlington Quay	Aug. 10
Additions, &c. to House, Boston West	Boston Corporation	W. H. Wheeler, C.E. Market-place	do.
Extension of Drainage at Workhouse, Lexden, Essex	Dexden and Wimtree Union	J. Ennals, Surv Copford	do.
Chapel and School, Pleasant-road Southend		Rev. T. Jackson, 8, Rushmore-road, Clapton	do.
Footbridge, near Stonehouse, Glos.	G.W.R. Co.	G K. Mills, Paddington Stn.	do.
Sewering, Corless-street, &c.	Barrowford (Lancs) U.D.C.	J. Mallinson, Surv. Council Offices	do.
Bridge over River Nar, Castleacre	Lynn R.D.C.	J. S. Culham, Purv. Grimston, King's Lynn	Aug. 11
Wood Blocks	Rochdale Corp.	S. S. Platt, Boro' Surv. Town Hall	do.
Widening Footpaths, High-street Spennymoor		G. W. Rogers, C.E. Silver-street, Spennymoor	do.
Converting No. 46, Cowbridge-road, Cardiff		W. H. D. Caple, Archt. 1, St. John's-square, Cardiff	do.
Twenty Cottages, Goltrecoed Estate, Quakers-yard, Glam.		W. Dowdeswell, Archt. Treharris, Glam.	do.
Six Cottages, Church-road, Gorleston, Great Yarmouth	J. Tidman	W. D. Cockrill, Archt. Gorleston	do.
Four Farms, near Ferryhill, Durham	Colonel Surtees	F. H. Livesey, Archt. Market-place, Bishop Auckland	do.
Dispensary and Residence, Folly Hill, Aghalee	Lurgan Union	E. J. Donaldson, Union Offices, Lurgan	Aug. 12
Alterations to Business Premises, Bridge-street	Bradford Prov. Indus. Soc. Limited	Eyeroft & Firth, Archts. Manchester-rd. Bradford	do.
Enlargement of Board Workhouse, Dutton	Runcorn Union	S. Davies, Archt. Devonshire-buildings, Runcorn	do.
Church, Gawthorpe, near Ossett, Yorks		T. H. Farrar, Archt. Fountain-street, Halifax	do.
House and Farm Buildings, The Plump, Bewdley		T. R. Baker, Bark Hill, Bewdley	do.
Villa, High Ham, Somerset		J. Spire, Archt. Glastonbury	do.
Asphalte Footpaths, &c. nr. Boroughbridge	Aldborough Burial Ground Com.	F. Bates, Clerk, Boroughbridge	do.
Leicestershire Granite	Newmarket U.D.C.	S. J. Manton, High-street, Newmarket	do.
Private Improvement Works, Alfred-street, &c.	Halifax Corp.	E. R. S. Escott, C.E. Town Hall	do.
*Extension, Telegraph Office, Derby: Erecting Goods Office, Leicester: Foundations, Marple; Extension Awning, St. Albans	Midland Ry. Co.	Co.'s Archt. Cavendish House, Derby	do.
*Eight Houses, Seabro' (Coastguard)	Admiralty	Director, Works Dept. 31, Craven-street, W.C.	Aug. 13
Tower and Spire, Clones Church, Ireland		W. Hague, Archt. 50, Dawson-street, Dublin	Aug. 14
*Guernsey Granite and Gravel, Steam Rolling, &c.	Romford U.D.C.	The Clerk	do.

CONTRACTS—*Continued*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
School, Carakle, Cornwall	Illogan School Board	S. Hill, Archt. Greenlane, Redruth	Aug. 14
*Tank Sewer, Brick, &c. Sewers, Iron Pipe Sewers, Wall, &c.	Shipley U.D.C.	Malcolm Paterson, C.E. Bradford	Aug. 16
*Cast-iron & Earthenware Pipe Sewers	do.	W. R. Woodhead & Son, Engr 16 Exchange, Bradf'd	do.
Sewering and Kerbing, Ashfield-road, Morley, Yorks		M. H. Sykes, Boro' Surv. Town Hall	do.
Levelling, Paving, &c. Dartmouth-avenue, Morley		do.	do.
Two Cottages, Ballyhalse	G.N.R. Co. (Ireland)	T. Morrison, Sec. Amiens-st. Terminus, Dublin	do.
Cast-iron Pipes and Valves	Inverness T.C.	J. Fraser, C.E. Inverness	Aug. 17
Main Drainage	Luton T.C.	A. J. L. Evans, C.E. Town Hall	do.
Flagging, Paving, &c.	Birkenhead Corp.	C. Brewerridge, C.E. Town Hall	do.
Kerbing Paving, &c.	Burnley Corp.	G. H. Pickles, Town Hall	do.
*Granite and Flints	Kingston-on-Thames Corp.	Boro' Surv. Clattern House, Kingston	Aug. 18
*Movable Floor over Swimming Bath	Hackney Union	T. R. Coles, Clerk's Office, Homerton, N.E.	do.
Additions to Workhouse, Griffithstown	Pontypool Union	Lansdowne & Briggs, Archt. Newport, Mon.	do.
*Road and Sewer	Radnorshire County Gov. Body	H. Teather, Andrew's Bldgs. Queen-street, Cardiff	Aug. 21
Engine House, &c. Charlton-road	Sunbury-on-Thames U.D.C.	J. Anstie, C.E. 17, Victoria-street, S.W.	Aug. 23
Granite Road Met'l	*stevenage U.D.C.	W. O. Times Council Offices	do
Chimney shaft	Liverpool Corp.	City Engr Municipal Bldgs.	Aug. 24
*Warming School Building	Walthamstow Sch. B.	W. A. Longmore, 7, St Alls-street, Whitechapel	do.
Enlarging Wesleyan Chapel, Trimdon Grange, Durham		W. B. Woodhead, Trimdon Grange	do.
*Extension of Electric Light Buildings	Kingston-on-Thames Corp.	Boro' Surv. Clattern House, Kingston	Aug. 26
*Making up Roads	Wood Green U.D.C.	C. J. Gunyon, Town Hall	Aug. 27
School, Dinas Powis, Glam.	Cardiff and Barry Sch. Bd.	W. H. D. Caple, Archt. 1, St. John's-square, Cardiff	Aug. 28
Twenty-eight Houses, &c. Hill Head, Malkroyd-lane	Dewsbury Pioneers' Indus. Soc. Ltd.	Holton & Fox, Archt. Westgate, Dewsbury	Aug. 30
Rebuilding "Alexandra" Inn, Chatham	Budden & Biggs' Brewery, Ltd	Mr. Boucher, Archt. High-street, Rochester	No date
*Heating and Ventilation to Schools	Tiverton School Board	Silcock & Reay, Octagon-chambers, Bath	do.
Alterations to "Golden Fleece" Inn, St. Nicholas, Carlisle		G. Armstrong, Archt. 45, Lowther-street, Carlisle	do.
Additions to Victoria Cottage Hospital, Barnet		C. P. Ayres, Archt. 14a, High-street, Watford	do.
Extensions, Victoria British Schools, Dukinfield		J. H. Barton, Archt. 2, Guide-lane, Mooley Hill	do.
*Erecting Boys' School and Alteration to Infants' School		T. Potter, 49, London-rd. Sevenoaks	do

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*City Engineer's Assistant	Oxford Corp.	2l. per week	Aug. 16
*Assistant Surveyor	Darwen Corp.	120l. per ann. to commence	Aug. 17
*Headmaster, School of Arts and Crafts	London County Council	400l. per ann.	Sept. 13

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p. xix.* *Contracts, pp. iv. vi. viii. & xix.* *Public Appointments, pp. xvi. & xix.*

WATFORD.—For the erection of store buildings in the St. Alban's-road, for the St. Andrew's (Watford) Co-operative Society, Limited. Mr. C. P. Ayres, architect, Watford:—

		Deduct if Fireproof Floor omitted.
Darvill	£2,820	£225
Brightman	2,833	233
General Builders, Ltd., London	2,796	203
Goss	2,694	220
Dupont	2,659	192
Neal	2,625	160
Waterman	2,564	202
Turner, Ltd.	2,534	209
Watkins	2,448	218
Combridge	2,398	225
Reed	2,353	215
Eames, Watford (accepted)	2,298	210

WATFORD.—For stripping, re-glazing, and re-slating the roof of the Clarendon Hall, for the Agricultural Hall Company, Limited. Mr. C. P. Ayres, architect, Watford:—

Wiggs	£705	Combridge	£593
T. Turner, Limited	653	Eames, Watford*	480

* Accepted.

WATFORD.—For the erection of club room at "The George" Hotel, for Messrs. M. A. Sedgwick & Co., Watford Brewery. Mr. C. P. Ayres, architect, Watford:—

Brightman	£1,526	Reed, Watford*	£1,478
Judge	1,495		

* Accepted, slightly amended.

WEST HAM.—For the construction of foundations at lunatic asylum, Chadwell Heath, Ilford, for the Council. Mr. Lewis Angell, Borough Engineer, Town Hall, Stratford, E.:—

Foundations (Contract No 2).

McCormick & Son	£17,654 0 0	Chessum & Sons	£10,9 7 0 0
T. Adams	13,349 6 8	Kirk & Randall	10,8 8 0 0
Shilliane & Son	12,300 0 0	G. W. Bell	10,5 6 0 0
J. Jackson	11,765 8 0	Gregar & Son, Stratford*	10,733 8 0
C. Trail	11,646 0 0		
G. Sharpe	11,230 0 0		

* Accepted.

WEST HAM.—For the execution of private street works: Park-lane, Park-place, Abbey-lane, Stratford; and Rochester-avenue, Percy-road, Claughton-road, Selsdon-road, and Green-street, Upton Park. Mr. Lewis Angell, Engineer:—

W. Griffiths	£6,649 7 10	J. Jackson, Plaistow*	£5,8.8 11 2
W. Gibbs & Co.	6,254 8 7		
T. Adams	6,160 0 0		

* Accepted.

WEYMOUTH.—For the erection of a residence on the Bincleaves Estate, for Mr. Alfred Dennis. Messrs. Jennings & Goater, architects, Bournemouth. Quantities by the architects:—

G. Bevan	£1,717 18	Bath & Co.	£1,542 0
Jones & Son	1,678 0	H. Smith	1,501 0
G. Whittaker	1,644 0	McWilliam & Son	1,479 8
W. Purchase	1,457 0	F. Horsey (accepted)	1,420 0

WIMBLEDON.—For granite concrete paving or the Urban District Council. Mr. C. H. Cooper, C.E. Council Offices, Broadway, Wimbledon:—

	Price per Yard Super.				
	Granite Concrete Paving.		Hardcore.		
	2-in. thick.	3-in. thick.	4-in. thick.	6-in. thick.	
The Granite Paving Co., New Kent-road, S.E.	s. d. 2 9	s. d. 3 9	s. d. 0 6	s. d. 0 9	
John Rule, Argyle-square, Sunderland	3 3	4 0	0 6	0 7	
Patent Impervious Stone Co., Victoria-street, S.W.	3 1	4 2	1 0	1 3	9d.—Stripping surface of path and rolling in cases where the existing hardcore is allowed to be used, at per yard super.
John Mowlem & Co., Grosvenor Wharf, Westminster	3 2	4 0	0 8	1 0	4d.— do. do.
W. B. Wilkinson & Co., Great George-street, Westminster, S.W.	3 4 In situ	4 4 In situ	0 5	0 8	4d.— do. do.
Patent Indurated Stone Co., Ltd., Blengall-road, Millwall, E.	3 6	4 6	0 6	0 8	
McCarthy & O'Connor, Mill-road Wharf, Cambridge	3 11	4 5	0 6	0 8	
Imperial Stone Co., Ltd, East Greenwich	3 8	5 0	0 4	0 6	If laid in Imperial Stone, 2/abs. per super yard, 5s.
Stuart Granolithic Stone Co., Ltd., Regent Dock, Limehouse, E.	—	3 11*	0 7	0 9	
Adamant Stone and Paving Co., Ltd., Palmerston Buildings, Old Broad-street, E.C.	4 0	—	—	—	Delivered on rail.
A. & F. Manuelle, Leadenhall-street, E.C.	3 10	—	—	—	do.

* Stuart's Patent Granolithic Stone. Ditto, 4 in. thick 5s.

WIMBLEDON.—For the execution of tar paving works for the Urban District Council. Mr. C. H. Cooper, C.E., Broadway.

	Price per Yard Super.				
	Tar-paving 3 in. thick.	Tar-paving 4 in. thick.	Hardcore 4 in. thick.	Hardcore 6 in. thick.	
J. Ford, Coalville, near Leicester	s. d. 2 10	s. d. 3 0	s. d. 0 3	s. d. 0 4	
W. E. Constable & Co., Kentish Town, N.W.	2 1½	2 6	0 7	0 9	Stripping surface of path and rolling in cases where the existing hardcore is allowed to be used, 1½d.
McCarthy & O'Connor, Mill-road Wharf, Midland Railway, Cambridge	2 2	2 7	0 8	0 10	
Edmund Iles, North-road, Wimbledon	2 6	3 0	0 6	0 8	
Edmund Iles, North-road, Wimbledon	2 1	2 6	0 6	0 8	If the works were carried out as they were last year, that is, with gravel tar-paving, bottoming and limestone tar-paving topping.

WIMBLEDON.—For the erection of stabling, &c., for the Urban District Council. Mr. C. H. Cooper, C.E., Broadway. Quantities by Pryce, Cuxson, & Leigh, 17, Victoria-street, Westminster, S.W.:—

Smith & Sons	£9,969	E. P. Bulled & Co.	£9,497
John Garrett & Sons	9,940	W. H. Lorden & Son	9,444
Duncan Stewart & Sons	9,600		

WOMBWELL.—Accepted for the extension of school buildings, Broomhill, for the School Board. Mr. J. Robinson, architect, Park Cottage, Wombwell:—

Masonry and Bricklaying.—W. Johnson	£141 10 6
Carpentry and Joinery.—C. Linford	77 19 8
Plumbing and Glazing.—F. Savill	15 0 0
Plastering.—McPontlain	9 0 0
Slating.—C. Kemp	21 0 0
Painting.—F. C. Wilson	8 10 0

WORTLEY.—For laying water mains, Liberty Hill, &c., for the Rural District Council. Mr. G. E. Beaumont, Surveyor, Workhouse, Greenoside, near Sheffield:—

E. Butcher, Wadsley, Sheffield	£177 20

LONDON SCHOOL BOARD TENDERS.

At the meeting of the London School Board on Thursday, July 29, the following lists of tenders were submitted by the Works Committee:—

BLACKWALL-LANE SCHOOL (Greenwich Marsh).—For additional heating:—

J. Defries & Sons, Ltd.	£144 10	Duffield & Co.	£97 0
J. Fraser & Son	38 0	Vaughan & Brown, Ltd.	24 0
J. & F. May	27 10	J. C. & J. S. Ellis, Ltd.	23 10
J. Wontner-Smith, Gray, & Co	26 3	Strode & Co.*	23 0

BROMLEY HALL-ROAD SITE.—For new boundary wall in Leven-road:—

A. W. Derby	£273	D. Gibb & Co.	£215
G. Munday & Sons	232	J. T. Robey	193
J. F. Holliday	225	C. Wales*	183

For lithographing quantities:—

No. of Copies.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
At per page																			
Mitchin & Co.	4	3½	3½	3½	3½	3 1/11	3	2 11/13	2½	2½	2½	2 17/17	2½	2 5/13	2½	2½	2 11/11	2 3/23	2
Standidge & Co., Lim.	4½	3½	3½	3	3	2 10/11	2½	2 5/13	2½	2½	2 12/13	2 11/17	2½	2 4/13	2½	2½	2 11/11	1 23/23	1 23/24
Truscott & Son	3½	3½	3	2½	2½	2½	2½	2½	2½	2	2	2	1 23/24	1 23/23	1 23/23	1 23/23	1 23/23	1 23/23	1 23/24
Oldacres & Co.	3	3	2½	2½	2½	2½	2½	2½	2½	2	2	2	1 23/24	1 23/23	1 23/23	1 23/23	1 23/23	1 23/23	1 23/24
Waterlow & Sons, Lim.	2½	2½	2½	2½	2½	2½	2½	2 5/13	2½	2 1/11	2	1 23/24	1 23/24	1 23/23	1 23/23	1 23/23	1 23/23	1 23/23	1 23/24
Cook & Hammond	3½	3½	2½	2½	2½	2 1/11	2½	2 1/13	2	1 23/24	1 23/24	1 23/24	1 23/24	1 23/23	1 23/23	1 23/23	1 23/23	1 23/23	1 23/24
Brighton & Co.	3	3	2½	2½	2½	2½	2	2	2	1 23/24	1 23/24	1 23/24	1 23/24	1 23/23	1 23/23	1 23/23	1 23/23	1 23/23	1 23/24
Waterlow Bros. & Layton, Lim.*	2½	2½	2½	2	2	2	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½

† In the cases marked with a dagger (†) a charge of 1s. per set extra is made for binding full sets of quantities in open, and lettering, and in those cases marked with a double dagger (‡) a charge of 1s. 6d. is made.

For cleaning and repairing blinds:—

Articles and Work.		H. Evans.		W. Guaron.		James & Son.	Tidmarsh & Sons.		J. Williams.		J. Yarrow & Son.
		City, Finsbury, Hackney, E. and W. Lambeth.	Chelsea, Marylebone, and Westminster.	City, Finsbury, and Hackney.	Chelsea, Marylebone, Westminster, E. and W. Lambeth.	City, Finsbury, Hackney, E. and W. Lambeth, Chelsea, Marylebone and Westminster.	City, Finsbury, and Hackney.	E. and W. Lambeth, Chelsea, Marylebone, and Westminster.	City, Finsbury, and Hackney.	E. and W. Lambeth, Chelsea, Marylebone, and Westminster.	City, Finsbury, and Hackney.
New cloth, as per item 1 of specification	per ft. sup.	s. d. 0 2½	s. d. 0 2½	s. d. 0 2½	s. d. 0 2½	s. d. 0 2½	s. d. 0 2½	s. d. 0 2½	s. d. 0 2½	s. d. 0 2½	s. d. 0 2½
Piecing out old blinds, as per item 3	,,	0 3	0 3	0 3	0 3	0 3	0 2½	0 2½	0 2½	0 2½	0 2½
New spring rollers, as per item 4	per ft. run	1 6	1 6	1 11½	2 0	1 6	1 6	1 6	1 6	1 6	1 8
Re-charging, &c., to spring rollers, as per item 5	,,	0 3	0 3	0 3½	0 3½	0 2	0 6	0 6	0 3	0 3	0 3
Providing new springs to old rollers, as per item 6	,,	0 6	0 6	0 6½	0 7	0 6	1 6	1 6	0 6	0 6	0 6
New metal rollers, as per item 9	,,	0 10	0 10	1 0	1 1	0 9	1 4	1 4	0 11	0 11	0 10
Cleaning and glazing, as per item 2, any blind not exceeding 3 ft. by 8 ft.	per blind	3 6	2 6	2 5	2 5	2 6	2 2	2 6	2 6	2 3	2 6
Cleaning and glazing, as per item 2, any blind exceeding 3 ft. by 8 ft.	,,	4 0	4 0	3 10½	3 10½	4 0	2 8	3 0	3 0	3 0	4 0
Glasing, as per item 2A, any blind not exceeding 24 ft. super	,,	1 3	1 0	1 3	1 3	2 0	2 0	2 0	1 0	1 0	1 6
Glasing, as per item 2A, any blind exceeding 24 ft. super	,,	1 9	1 6	1 6	1 6	2 0	2 0	2 0	1 0	1 0	2 0
Re-fixing complete, as per item 13	,,	0 9	0 9	1 0	1 1	2 0	1 0	1 0	0 8	0 8	1 0
New bottom laths, as per item 7	each	0 6	0 6	0 6	0 6	0 6	0 6	0 6	0 4	0 4	0 6
New wood rollers (not exceeding 6 ft. in length), as per item 8	,,	2 6	1 6	2 0	2 1	2 6	2 0	2 0	1 6	1 6	2 0
New wood brackets, as per item 10	,,	1 0	1 0	1 4	1 4½	2 0	2 0	2 0	1 6	1 6	1 3
New blocks for brackets, as per item 11	,,	0 6	0 6	0 7	0 7½	0 6	0 6	0 6	0 6	0 6	0 6
New ash cleats, as per item 12	,,	0 4	0 4	0 6	0 6	0 4	0 4	0 4	0 6	0 6	0 4
New brass hooks, as per item 13	,,	0 2	0 2	0 3	0 3	0 2	0 4	0 4	0 3	0 3	0 4
New brass ends and pins complete, as per item 14	,,	1 0	0 6	0 9½	0 10½	0 4	0 4	0 4	0 6	0 6	0 9
New galvanised ends and pins complete, as per item 14	,,	0 9	0 6	1 3	1 4	0 4	0 5	0 5	0 6	0 6	0 9
New galvanised iron brackets, as per item 14	,,	0 4	0 4	0 3	0 3	0 4	0 4	0 4	0 3	0 3	0 4
New brass flanges, as per item 14	,,	0 6	0 4	0 8	0 8½	0 6	0 6	0 6	0 8	0 8	0 6
Worn pulls, as per item 17	,,	0 1	0 1	0 1	0 1½	0 1	0 1	0 1	0 1	0 1	0 1½
New galvanised flanges, as per item 14, at per 1 in. in diameter	,,	0 6	0 6	0 7	0 8	0 6	0 5	0 8	0 3	0 3	0 6
Provide and fix rack pulley as per item 18	,,	0 4	0 4	0 6½	0 7	1 0	0 9	0 9	0 6	0 6	0 6
Allowance per old blind, as per item 19	,,	0 0½	0 0½	—	—	0 1	0 0½	0 0½	0 1	0 1	0 6
New No. 4 super flax cord, as per item 16	per gross	4 0	4 0	5 0	5 0	4 6	4 6	4 6	5 0	5 0	5 0

The Committee recommended the acceptance of the tenders of (*a*) Messrs. Tidmarsh & Sons for the City, Finsbury, and Hackney Divisions; (*b*) Mr. J. Williams for the Chelsea, Marylebone, and Westminster Divisions; and (*c*) Messrs. James & Son for the East and West Lambeth Divisions.

For the supply of tubular boilers:—

	Hope Foundry Co.	Lumby, Son, & Wood, Ltd.	Kitchen & Co., Lim.	Palace Stove Company.	Hartley & Sugden, Limited.	Albion Iron Company.*
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
„ pattern, 12 in. wide, with two tubes	2 18 0	2 15 0	2 15 0	2 5 0	2 5 6	2 6 6
„ „ „ „	4 5 9	4 0 0	4 0 0	4 5 0	4 3 0	3 10 6
„ pattern, 14 in. wide, with three tubes	3 5 0	3 0 0	3 0 0	2 12 6	2 15 6	2 12 6
„ „ „ „	4 10 3	4 5 0	4 5 0	5 0 0	4 18 0	3 15 0
„ pattern, 16 in. wide, with four tubes	3 10 0	3 5 0	3 5 0	3 0 0	3 5 6	2 19 0
„ „ „ „	4 16 0	4 10 0	4 10 0	5 15 0	5 8 0	4 2 6
„ pattern, 18 in. wide, with four tubes	3 18 9	3 12 6	3 12 6	3 3 0	3 18 0	3 0 0

For cleaning and repairing clocks in the West Lambeth District:—

		Group 1 (67 clocks)	Group 2 (85 clocks)	Group 3 (69 clocks)	Group 4 (86 clocks)	Group 5 (75 clocks)	Group 6 (23 clocks)	All Groups (405 clocks)
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
H. Marshall	per clock	7 6	7 6	7 6	7 6	7 6	7 6	7 6
a Meader	per annum.	5 0	5 0	5 0	5 0	5 0	5 0	5 0
H. Monks	,,	2 3	2 3	2 3	2 3	2 3	2 3	2 3
Perer, Kuss, & Co.	,,	—	—	—	—	—	—	2 3
A. Sainsbury*	,,	2 0	2 0	2 0	2 0	2 0	2 0	2 0

CITY (Graystoke-place).—For providing and fixing wirework on iron railing:—

Rowland, Drew, & Co.	£11 0	Braby & Co.*	£9 15

CLERKENWELL-CLOSE STORES.—For additional fittings and furniture, &c.:—

Illingworth, Ingham, & Co.	£426	W. H. Lascelles & Co.*	£415

CLERKENWELL-CLOSE STORES.—For coverings to loading stages:—

Kirk & Randall	£230	F. Braby & Co., Ltd.*	£159
Hayward Bros. & Eckstein, Ltd.	195		

ENFIELD-ROAD SCHOOL (De Beauvoir Town).—Tender for special school, manual centre, &c.:—

		Extra amount required for building brickwork in cement.
Dove Bros.	£4,614	£45
J. Grover & Son	4,532	48
E. Lawrance & Sons	4,389	45
Treasure & Son*	4,297	43

HAGUE-STREET SCHOOL (Bethnal Green).—For additional heating:—

H. C. Price Lea & Co.	£108 0 0	G. Davis	£74 0 0
Comyn Ching & Co.	99 10 0	Duffield & Co.	66 0 0
Stevens & Sons	95 0 0	J. Grundy*	62 16 6
W. Simmons	87 15 0		

KNEE-HILL SCHOOL (Plumstead).—For enlarging iron building, &c.:—

T. Cruwys	£360	T. J. Hawkins	£302 10
J. Lysaght, Ltd.	290	J. Mitson	196 5
Croggon & Co., Ltd.	235	W. Harbrow*	187 0

LARKHALL-LANE SCHOOL (Clapham).—For additional heating:—

H. C. Price Lea & Co.	£49 0	Comyn Ching & Co.	£34 15
J. F. Clarke & Sons	41 0	W. Simmons	31 10
Vaughan & Brown, Ltd.	38 0	Stevens & Sons	30 0
J. Defries & Sons, Ltd.	37 10	J. C. & J. S. Ellis, Ltd.	28 0
Strong & Collings	25 0	Duffield & Co.*	23 0

LAXON-STREET SCHOOL (Bermondsey).—For repairing casements, &c.:—

W. Downs	£135 0	G. Brittain	£108 0
Rice & Son	146 0	Johnson & Co.*	82 10

PAGE'S-WALK SITE (Bermondsey).—Enclosing, &c., additional land and executing works on site:—

		Extra amount required for building brickwork in cement.
Rice & Son	£1,003 0	£24 0
W. Akers & Co.	871 0	25 0
F. G. Mintes	850 0	30 0
J. Garrett & Son	843 0	30 0
D. Charteris	816 0	27 0
T. Nicholson	792 0	72 0
Thomas & Cooper	776 10	36 0
J. F. Ford	755 0	25 0
Jones & Groves	730 0	48 0
W. V. Good	675 0	20 0
H. Leney*	675 0	19 19

POPE-STREET SCHOOL (Eltham).—For additional heating apparatus:—

H. C. Price Lea & Co.	£115 0	J. Wontner-Smith, Gray, & Co.	£75 0
J. & F. May	87 0	J. C. & J. S. Ellis, Ltd.	67 0
J. Gray	82 0	W. G. Cannon*	66 15
J. F. Clarke & Sons	79 0		
J. Defries & Sons, Ltd.	75 0		

PORTOBELLO-ROAD SITE (North Kensington).—Adaptation of House, No. 108, Lancaster-road, for a special school and a housewifery centre:—

G. Chase & Son	£827 0	Marchant & Hirst	£279 0
R. A. Yerbury & Sons	375 0	F. T. Chinchen	262 18
T. Cruwys	362 0	W. R. & A. Hide*	258 15
H. Eady	344 5		

SANTLEY-STREET SITE (West Lambeth AB).—For erecting iron buildings:—

D. Charteris	£1,195 0	T. J. Hawkins	£1,020 0
Humphreys, Limited	1,124 0	J. Mitson	998 17
W. Harbrow	1,075 0	Creggon & Co., Ltd.*	937 10
T. Cruwys	1,050 0		

WESTMINSTER (Hart-street).—Providing iron railings, wire netting, &c.:—

T. Cruwys	£23	Clarke & Hunt*	£8 12

For the supply of various articles of furniture:—

(a) Cast Stands and Lesson Stands.

		Cast Stands.	Lesson Stands.
		s. d.	s. d.
J. H. W. Martin	each	12 6	7 9
W. H. Lascelles & Co.	,,	10 6	4 1
Wake & Dean	,,	8 6	3 0
J. Garvie & Sons	,,	7 9	6 0
Illingworth, Ingham, & Co.	,,	7 5	3 9
North of England School Furnishing Company	,,	7 0	—
Rice & Son	,,	6 10	4 2
T. Cruwys	,,	6 6	6 0
H. Addison & Co.	,,	5 6	3 0
Benset Furnishing Company	,,	7 9	*2 7½
H. Bouneau	,,	*5 5	3 0

(b) Swing Slates.

	Swing Slates. No. 1.	Swing Slates. No. 2.
Illingworth, Ingham, & Co.	£3 6 6	£2 15 6
J. Garvie & Sons	3 2 6	2 15 0
Wake & Dean	2 10 0	1 19 0
G. M. Hammer & Co.	2 2 0	*1 14 0
Rice & Son	*1 18 10	2 10 9

(c) Evening Class Boards.

	Large, per doz.	Small, per doz.
Educational Supply Association, Limited	£12 5 0	£9 9 0
J. Garvie & Sons	8 14 0	5 14 0
Foster, Cooper, & Foster	8 10 0	4 5 0
J. Martin	7 14 0	6 0 0
W. H. Lascelles & Co.	7 12 0	4 10 6
Illingworth, Ingham, & Co.	7 10 0	5 5 0
E. Spencer & Co.	7 9 0	4 13 6
North of England School Furnishing Co., Limited	7 6 0	4 7 0
G. M. Hammer & Co.	6 9 0	4 4 0
Wake & Dean	6 8 0	5 2 0
Rice & Son	5 18 0	4 18 0
T. Cruwys	5 5 0	4 12 0
H. Addison & Co.	4 10 0	3 6 0
Benset Furnishing Co.	4 4 0	*2 12 0
H. Bouneau	*4 1 0	3 9 0

(d) Arm and Small Chairs.

	Arm-chairs. per doz.	Small chairs. per doz.
West & Collier	£6 0 0	£17 10 0
Price & Son	6 0 0	15 0 0
T. Harding	5 14 0	15 0 0
T. Glenister	5 8 0	15 6 8
J. Martin	5 0 0	15 16 8
S. W. Bateman	4 16 0	*12 10 0
J. Cox & Son	4 16 0	13 15 0
B. Cartwright & Son	*4 10 0	12 18 4

(e) Managers' Boards.

	Per doz.		Per doz.
Wake & Dean	£3 12 0	E. Spencer & Co.	£2 8 0
Foster, Cooper, & Foster	3 6 0	North of England School Furnishing Co., Ltd.	2 7 0
Rice & Son	3 2 0	H. Addison & Co.	2 2 0
T. Cruwys	3 0 0	Illingworth, Ingham, & Co.	2 2 0
J. Garvie & Sons	3 0 0	W. H. Lascelles & Co.	2 1 0
Educational Supply Association, Ltd.	2 19 0	H. Bouneau	2 0 0
G. M. Hammer & Co.	2 17 0	Bennet Furnishing Co.*	1 13 0
J. Martin	2 14 0		

(f) Playground Notice Boards.

	Each. s. d.		Each. s. d.
Educational Supply Association, Limited	15 9	W. H. Lascelles & Co.	9 3
Foster, Cooper, & Foster	13 6	G. M. Hammer & Co.	8 6
J. Garvie & Sons	11 6	North of England School Furnishing Co., Ltd.	7 6
Wake & Dean	10 3	Rice & Son	5 10
Illingworth, Ingham, & Co.	9 3	Bennet Furnishing Co.*	4 9

(g) Folding Steps.

	Per dozen pairs.		Per dozen pairs.
G. M. Hammer & Co.	£17 14	J. Garvie & Sons	£11 14
North of England School Furnishing Co., Ltd.†	†15 5	H. Bouneau	11 6
Foster, Cooper & Foster	15 0	Illingworth, Ingham, & Co.	11 5
Rice & Son	13 0	Wrinch & Sons*	7 10
J. Martin	12 0		

† Incomplete tender.

(h) Hat and Coat Stands and Teachers' Platforms.

	Hat and Coat Stands. Complete.	Teachers' Platforms 9 ft. 2 in. by 4 ft. 7 in. Complete.
Foster, Cooper, & Foster	£6 0 0	£4 12 6
E. Spencer & Co.	3 18 6	4 5 0
Illingworth, Ingham, & Co.	3 7 3	3 15 0
G. M. Hammer & Co.	3 3 0	5 3 0
Wake & Dean	2 12 6	3 10 0
North of England School Furnishing Co.	2 6 2	3 12 2
J. Martin	2 4 6	3 14 0
W. H. Lascelles & Co.	2 4 0	3 17 1
Rice & Son	1 17 6	3 15 0
H. Addison & Co.	1 14 6	3 3 0
H. Bouneau	*1 13 6	3 10 0
T. Cruwys	1 18 0	*2 15 0
Bennet Furnishing Co.	1 18 0	

For supply of ironmongery :—

H. S. Timpson	£155 6 4	Hart, Son, Peard & Co., Limited	£91 15 0
Robert Adams	126 0 8	Pryke & Palmer	83 10 7
Carter & Aynsley	110 16 9	Nettlefold & Sons	83 3 1
R. H. & J. Pearson, Limited	97 19 0		

For screens for ironing stoves :—

	Each. s. d.		Each. s. d.
T. Moore & Co.	14 6	J. C. & J. S. Ellis Ltd.	8 9
J. F. Lawrence*	11 6	Rownson, Drew, & Co.	8 6
O'Brien, Thomas & Co.	10 0	C. Portway & Son	8 0
R. H. & J. Pearson, Ltd.	10 6	F. Braby & Co., Ltd.	7 6
Pryke & Palmer	8 9	H. & C. Davis & Co., Ltd.*	7 0

For the supply of grate fronts :—

	Size A.	Size B.
Thomas O'Brien & Co.	£2 2 0 each	£2 4 0 each
The Palace Stove Company	1 15 0 ,,	1 17 6 ,,
Robbins & Co.	1 15 0 ,,	1 15 0 ,,
Fletcher, Russell, & Co.	1 10 0 ,,	1 11 6 ,,
Carron Co.	1 6 0 ,,	1 0 0 ,,
McDowall, Stevens, & Co., Ltd.	1 5 0 ,,	1 5 0 ,,
The Hope Foundry Company	1 2 0 ,,	1 2 0 ,,
The Falkirk Iron Company	1 0 0 ,,	1 1 0 ,,
The Coalbrookdale Co., Ltd.	1 0 0 ,,	1 0 0 ,,
John Gundy	1 0 0 ,,	1 0 0 ,,
Ashton & Green Iron Company	0 19 6 ,,	1 0 6 ,,
Yates, Haywood, & Co.	0 18 6 ,,	0 19 9 ,,
George Wright & Co.	0 17 6 ,,	1 0 9 ,,
Albion Iron Company*	0 18 0 ,,	0 19 9 ,,

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C. Gurling	15	,,	,,
W. R. & A. Hide	15	,,	,,
T. Cruwys	15	,,	,,
W. Brown	15	,,	,,
G. H. Sealy	15	,,	,,
T. Hooper*	10	,,	,,

Marylebone Division.—Groups 1 and 2.

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T. Cruwys*	15	,,	,,
H. Eady	15	,,	,,

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E. & O. Quitmann	481	15	5
Atkinson & Co.	468	15	0
Bentwood Furniture Co., Ltd.	468	15	0
Josias Eissler & Sons	468	15	0
Thonet Bros.	468	15	0
B. Cohen & Sons	468	15	0
H. S. Benjamin	450	13	8
J. H. W. Martin (not Bentwood)	442	14	2
Imperial and Royal Patent Manufactory of Austrian Bentwood Furniture (delivered as required)*	429	13	9

* Recommended for acceptance.

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